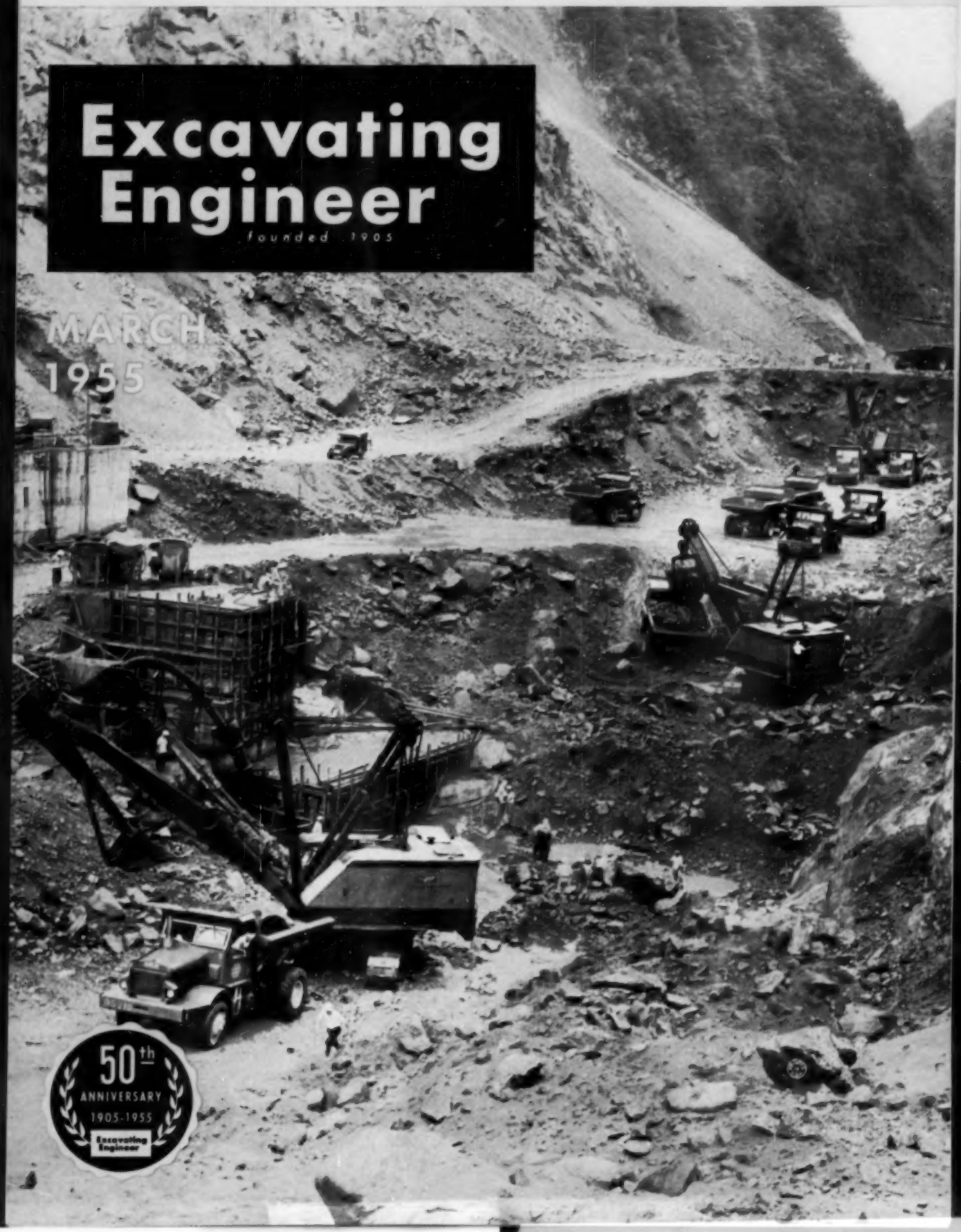
Japan pushes a huge hydroelectric power plan. The five-year goal: A five million kilowatt output rise. Dams across mountain rivers will do the job. In this photo, Japanese men and American machines get together on the Tenryu River's Sakuma Dam. See page 20 article.



Excavating Engineer

founded 1905

MARCH 1955

50th ANNIVERSARY 1905-1955 Excavating Engineer

No place for little ideas...

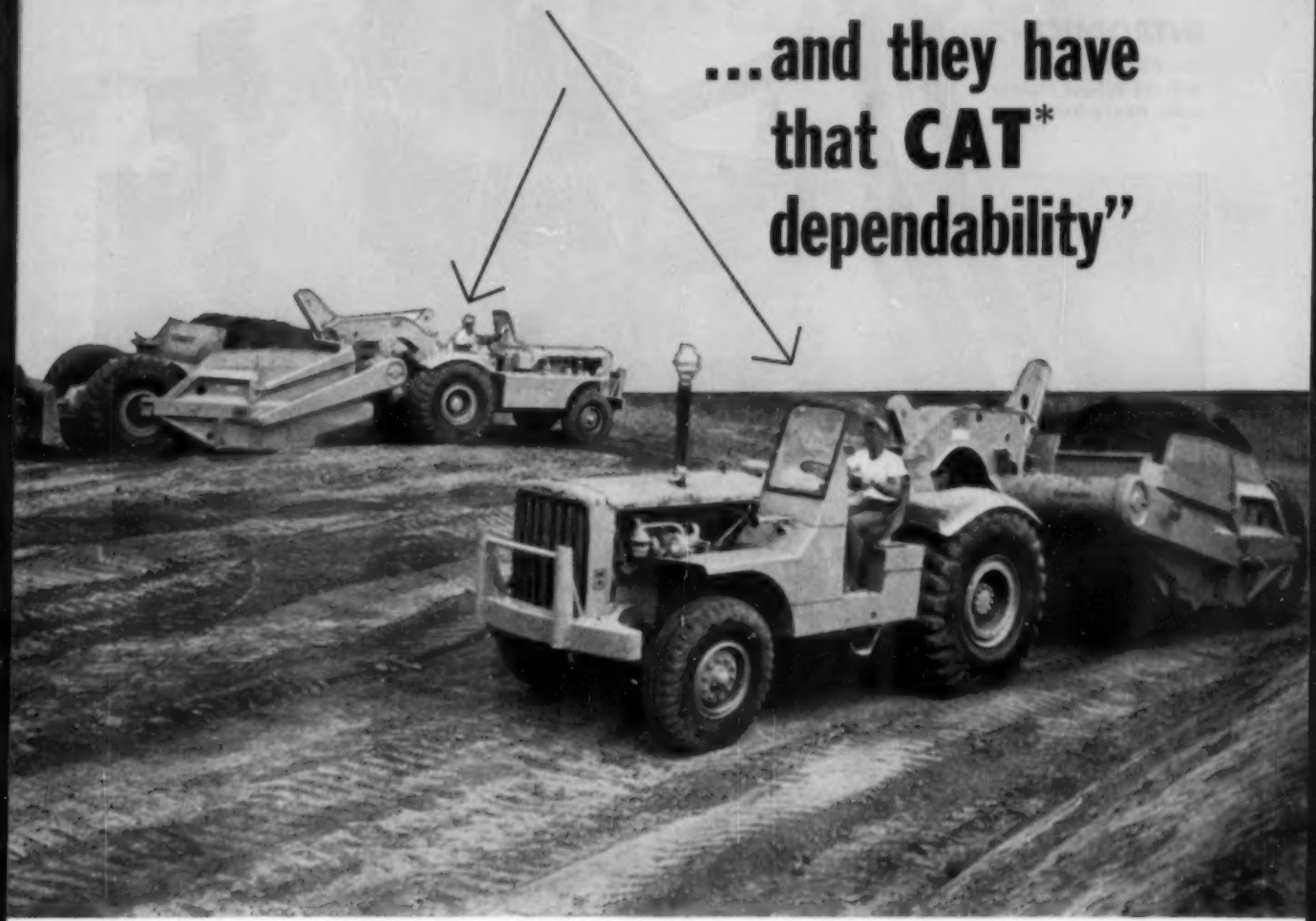
In large scale mining, the problems are big and ideas for solving them must measure up. Experienced strip mine operators know that Bucyrus-Erie stripping shovels and draglines offer the right answer — really big output, along with dependability and economical operation. In addition they provide long working ranges, time-saving maneuverability, and the basic simplicity of design that means low maintenance costs.

If your mining operation requires the economical handling of big yardages, investigate Bucyrus-Erie stripping shovels and draglines. 16L54C

BUCYRUS ERIE

South Milwaukee, Wisconsin

"They move plenty of dirt ...and they have that CAT* dependability"



A county road south of Bloomington, Kansas, had to be straightened. Fill for the job—some 70,000 yards of clay and loam—were to come from changing Kill Creek's channel . . . a big assignment that called for fast-stepping heavy-duty machines. G. W. Christolear, of Heide & Christolear Construction Co., Smith Center, Kansas, says, "We looked the earthmoving equipment field over, watched all makes of rubber-tired machines, talked to the owners, and settled on Caterpillar DW15s. The fact that they move plenty of dirt and have that Cat dependability convinced us."

The DW15s on this job haul heaped loads in their No. 15 Scrapers, making an 800-yard round trip in just over four minutes. They go ten hours a day on only 35 gallons of fuel.

These 150-HP four-wheeled workhorses are designed and built for tough, fast, economical work. They offer ten forward speeds to 24 m.p.h.—to 31.3 m.p.h. with optional gears. They perform especially well in narrow, confined areas. And they work smoothly with a complete line of matched units—with scrapers, and with bottom dump and side dump wagons.

But only a real demonstration can show you the DW15's advantages. Call your Caterpillar Dealer today. And remember, he's always handy with competent service and genuine factory parts—parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks — ®

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

AN OUTSTANDING NEW TEAM
for Ditching, Digging

INTRODUCING
the Allis-Chalmers WD-45 Wheel Tractor with Henry Backhoe

Whether it's digging ditches, trenches, culverts, footings or foundations, you'll find this team's power, mobility and versatility ideal for use on any dirt-moving job. Check the features that make this machine a big performer at low cost:

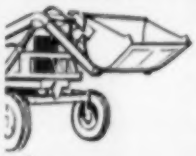
PLENTY OF POWER — for big-scale production. The WD-45 engine with POWER-CRATER design develops over 45 belt horsepower . . . to give you more power per dollar . . . more work capacity than other tractors of this type. Thousands already in use have given the WD-45 nationwide fame as a performance leader.

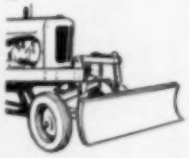
PLENTY OF WEIGHT — 5,325 lbs distributed right, give you the added traction and stability you need for tough, heavy digging and backfilling. It's a combination of a big, rugged wheel tractor and heavy-duty hoe to give years of continuous service.

MANY OPERATING FEATURES — let the operator do an efficient, thorough job in less time. With two-clutch control, the operator saves time because he can keep tractor in low gear while digging — can start and stop it on short moves with easy-to-reach hand clutch. The bucket, working like a giant hand, reaches out 12 ft, 8 in . . . digs 8 ft down . . . swings 160 degrees for wide area dumping. Backhoe assembly is all-steel, box-channel construction to take rough, hard use.

MANY SERVICE ADVANTAGES — will save you money. Engine features like exhaust valve rotators, removable cylinder liners, pressure lubrication give long life and lasting performance. Backhoe features, like replaceable bushings on all wear points, provide easy maintenance.

PLENTY OF VERSATILITY — keeps the WD-45 with backhoe busy all the time. The unit is mobile enough to reach any job, especially the hard-to-get-to places. With power-shift rear wheels, the tread can be adjusted in less than five minutes when extra stability is needed. Choose from six interchangeable buckets, 16 to 24-inch widths. Front-end loader and backfill blade attachments are available as optional equipment.





See the world-famous WD-45 with Henry Backhoe at your Allis-Chalmers industrial dealer, or write direct to the company for literature.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

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Excavating Engineer

founded 1905

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McHugh Erects Addition to Milwaukee Hospital 26

The James McHugh Construction Co. handles concrete placing operations in construction of an $11 million, 11-story reinforced concrete structure with two long-boomed crawler cranes.

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Big-inch concrete storm drain leads off on construction at west end of Los Angeles International Airport as contractor, J. Tomei & Sons Construction Co., whips sandy ground problems.

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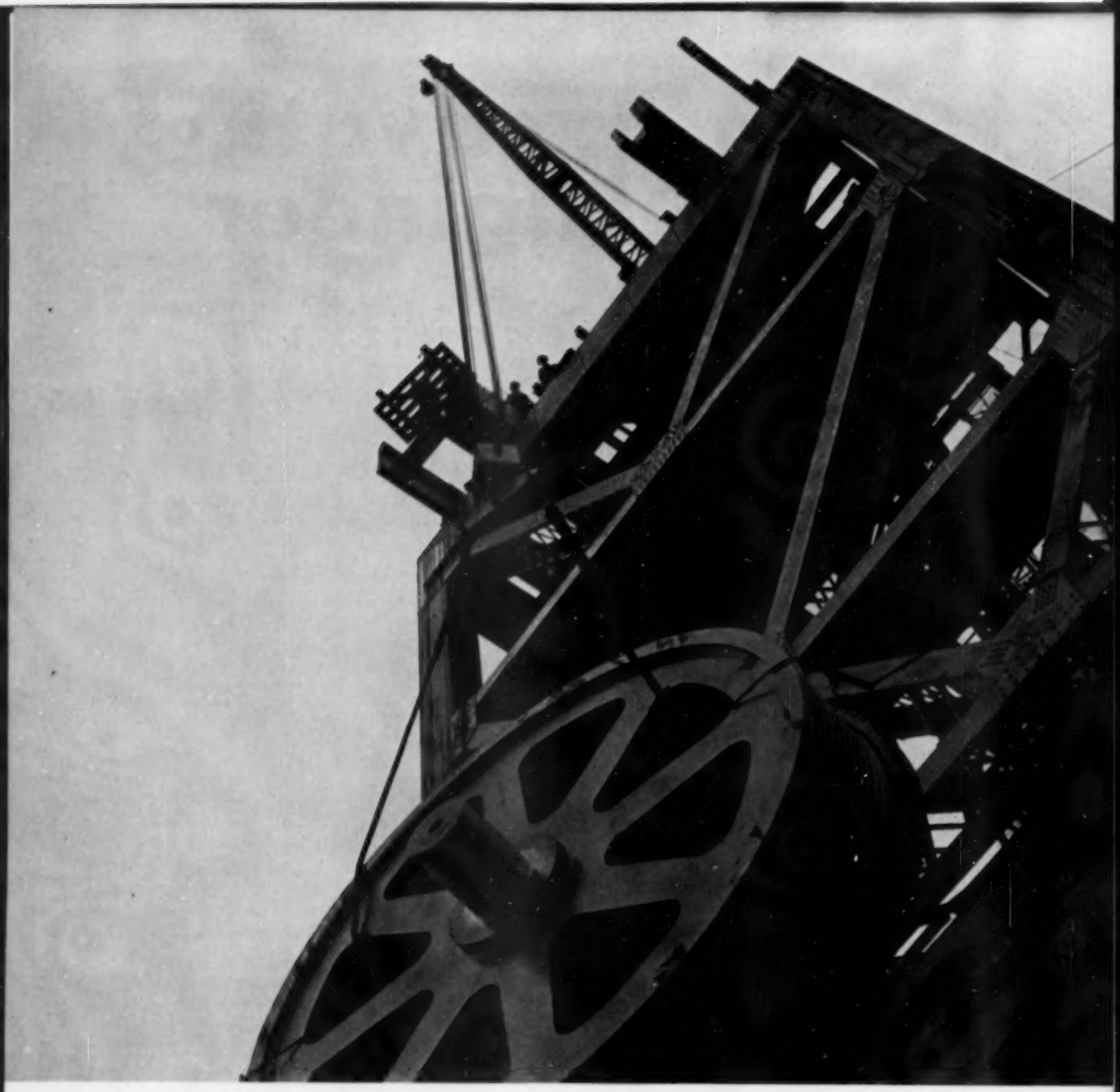


Wire Rope at Work—Here's an interesting operation that took place during construction of the Queens Welfare Island lift bridge crossing a portion of New York's East River. The giant sheave, weighing 37 tons, is one of a pair in the 170-ft tower at the east end of the bridge. A similar pair were placed in the west tower. Big 2⅜-in. Bethlehem wire ropes operate over these sheaves, providing links between the ends of the lift span and the counterweights.

The hoisting of the sheaves was no small job, but it was handled smoothly and without mishap by the erection contractor, Harris Structural Steel Company. This, like the operation of the span, is a type of work for which Bethlehem rope is ideally suited, for there is no more dependable cable made anywhere.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

THAT VERSATILE RIG.. THE PULLSHOVEL!

Northwest Pullshovel digging bell holes along with the trench.

Originally built for trench excavation the Northwest Pullshovel, because of its easy control, accuracy of handling and digging power, has been found efficient on a dozen and one jobs. Digging bell holes and basements, trimming banks—even grading road have all been found in the day's work of the Pullshovel.

Versatility like this means money in your pocket and often saves time that would be otherwise eaten up by converting to another type of boom. Ask for details about the Pullshovel. There is a size for your job.

NORTHWEST
ENGINEERING COMPANY
1506 Field Building
135 South LaSalle Street
Chicago 3, Illinois

Handling pipe for a gas line.

Left: Grading road—an unusual Pullshovel operation.

Right: Trimming bank on a bridge approach.

Above: Another bank trimming job.

Left: More and more Pullshovels are being used for basement excavation.

Right: Cleaning out small ore pockets in mining work.

NORTHWEST

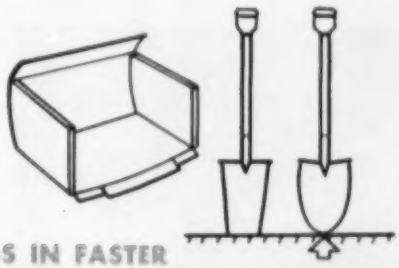
CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

5 BIG REASONS WHY ALLIS-CHALMERS move more dirt at

Watch an Allis-Chalmers scraper at work and you'll see that it loads bigger — travels and maneuvers more easily — puts more dirt right where you want it with the least tractor effort. Check features and you'll understand why an Allis-Chalmers scraper is able to outperform others. Then compare prices and you'll see that it gives you more scraper capacity per dollar — more for your money in every way.

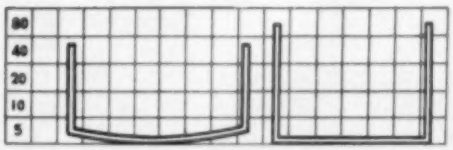
INTRODUCING THE AC-108, newest scraper in the Allis-Chalmers line — shown here with an Allis-Chalmers HD-15 Tractor Has 8.4 struck capacity (11 yd heaped). Incorporates all of the big-yardage features that have been job-proved in the other Allis-Chalmers scrapers, 2 to 18 yds heaped capacities.

SCRAPERS
lower cost



1 DIGS IN FASTER

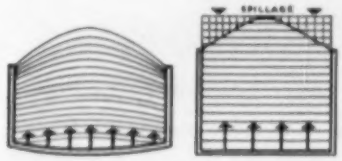
Curved and offset cutting edge on Allis-Chalmers scrapers concentrate all the tractor horsepower on the center section during initial penetration. The penetrating ability of a round-end spade helps illustrate the soundness of this Allis-Chalmers design.



2 LESS LOADING RESISTANCE

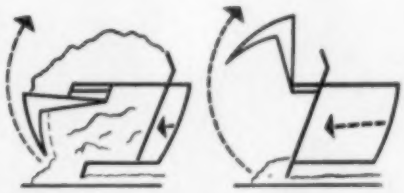
Low, wide bowl plays an important part in ease of loading. Since loading resistance is largely determined by the height to which the load is built, the lower, wider bowl of an Allis-Chalmers scraper requires less time and power to get the same yardage as other scrapers.

Diagrams show how an automatically heaped load avoids costly spillage even though the center is built up above the sides of the bowl.



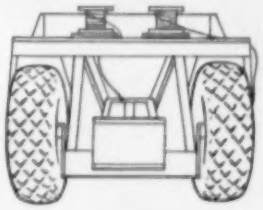
3 HEAPS AUTOMATICALLY

The combination of slightly deeper center cut and correctly angled cutting edge shapes the load as the scraper fills. The greater volume of dirt flowing into the center of the curved bowl "boils" forward, to the rear and to the sides, pulverizing the dirt, filling the voids and producing an automatically heaped load without excessive spillage.



4 POSITIVE EJECTION ASSURES EVEN SPREADING

With patented linkage, apron lifts, then moves forward and up as ejector pushes foward. High apron lift prevents any possibility of material's jamming. Even when loaded from overhead, anything that can be put into the bowl can be easily ejected. Ejector returns to loading position automatically by spring action and apron weight.



5 HAULS, MANEUVERS EASILY

Big, low-pressure tires provide maximum flotation. The extra wide, low bowl keeps center of gravity low, helps the scraper hug the ground for safety. Front running gear has ample clearance at all points, high carrying position clears uneven ground.

Scraper main frame is shorter because exclusive linkage moves apron forward as well as upward to clear main frame at full height. The two-to-three feet shorter wheel base permits easier maneuvering. Scraper can turn in its own length.

• • •

There is an Allis-Chalmers pull-type scraper for every tractor . . . every job. Write for literature or contact your Allis-Chalmers dealer.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Over a million

with ONE

IT GULPS DIRT BY THE CARLOAD. The Green Hornet—a 50-cu. yd. electric coal stripping shovel—must operate continuously day and night to justify its expensive existence. The long service life of TIGER BRAND Hoist Rope helps keep this goliath on the job with few interruptions or delays.

yards of tough digging

Tiger Brand Hoist Rope

THE first TIGER BRAND Hoist Rope installed on this coal stripping shovel worked 65 shifts in 23 days before it was replaced. It moved 1,161,155 cu. yds. of overburden in those three weeks.

That's good service in a punishing coal stripping operation. This big 50-cu. yd. shovel is busy every hour of the day and night, stripping overburden for Hanna Coal Company at Georgetown, Ohio. It averages as high as 54,000 yards a day. Its hoist rope really has to be *rugged* to work at that clip. The first TIGER BRAND Rope worked so well that an identical TIGER BRAND Hoist Rope replaced it.

This is not a unique case. We know of many TIGER BRAND Ropes on heavy-duty earth moving equipment that have moved a million or more yards before replacement. In cases of easier digging, service in excess of 2,000,000 cubic yards is not unusual. On *any* job, the correct TIGER BRAND Rope gives you the longest possible service . . . steady, rope-after-rope performance that *keeps down costs.*

Send the coupon for more information.

FREE ROPE BOOKLET

American Steel & Wire
Dept. E-35, Rockefeller Building
Cleveland 13, Ohio

Please send me, without obligation, a copy of your helpful wire rope selection guide, "The Right Rope for the Job."

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Company .....

Address .....

City & State .....

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

NEW "KING-SIZE" CARTRIDGES SAVE TIME AND LABOR

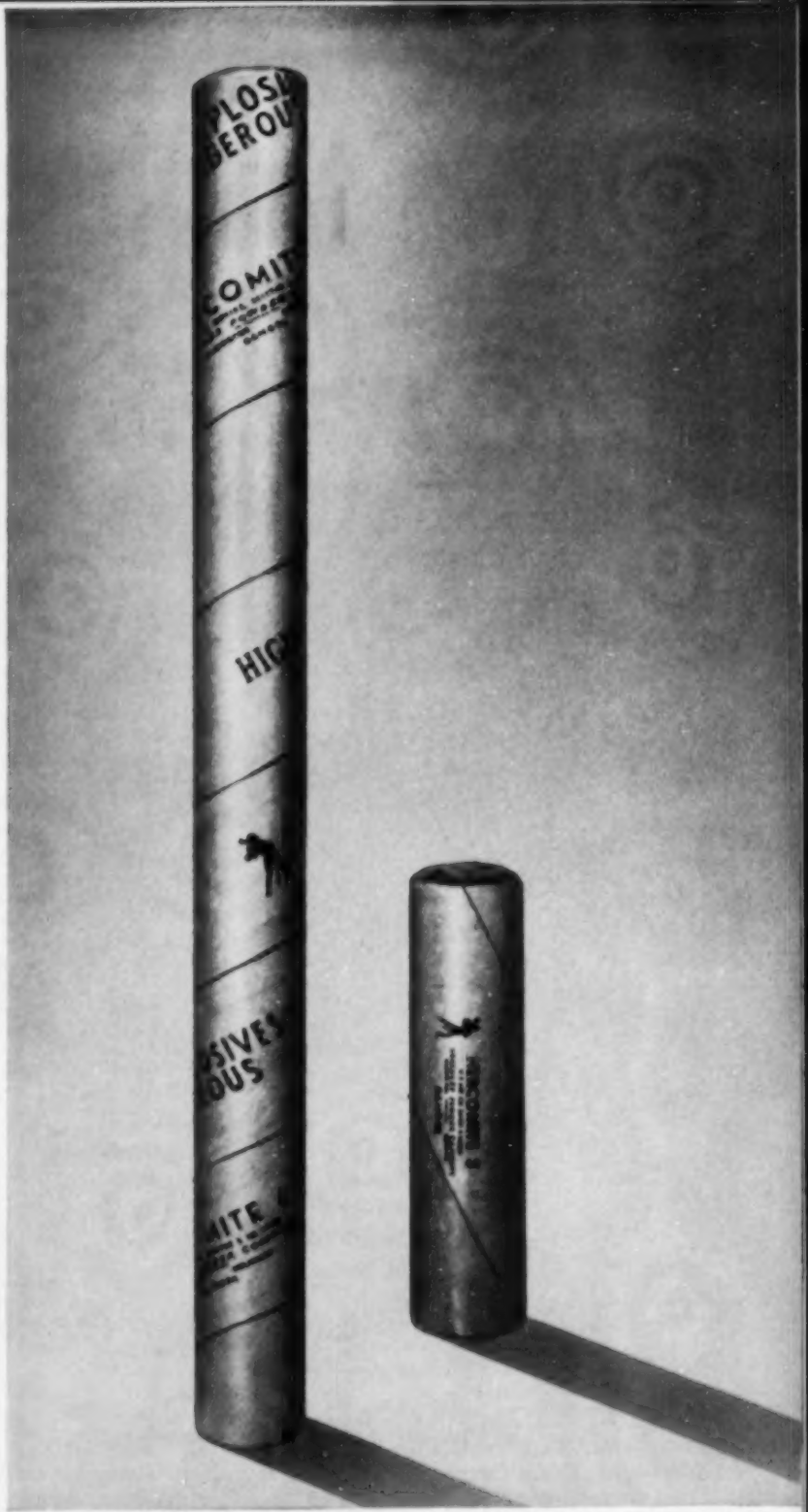
Now, Hercules produces "King-Size" cartridges in lengths of 24, 20, 16 and 12 inches, and in diameters of 1¼, 1½, 1¾, and 2 inches.

Available in all types of Hercules® dynamite, these long-length, small-diameter cartridges are now in full production.

"King-Size" cartridges make possible a more uniform fragmentation through the discharge of a single column of explosive. Their use means substantial savings in valuable time and labor in loading holes.

Hercules designed, tested, and installed special new packing machines for these "King-Size" cartridges.

Our technical service and sales representatives will be glad to discuss with you how these "King-Size" cartridges can go to work for you.



THREE TIMES AS LONG . . . Here is one of the new "King-Size" Hercules cartridges—24 inches in length, shown alongside the same grade in the conventional 8 inch size.

HERCULES

HERCULES POWDER COMPANY

INCORPORATED

Explosives Department, 972 King St., Wilmington, Del.

Birmingham, Ala.; Chicago, Ill.; Duluth, Minn.; Hazleton, Pa.; Joplin, Mo.; Los Angeles, Cal.; New York, N.Y.; Pittsburgh, Pa.; Salt Lake City, Utah; San Francisco, Cal.

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2. Interboro Rapid Transit
3. Interboro Rapid Transit
4. Brooklyn-Manhattan Transit
5. Independent Subway
6. Interboro Rapid Transit
7. Queens Midtown
8. Long Island RR
9. Brooklyn-Manhattan Transit
10. Independent Subway
11. Independent Subway
12. Interboro Rapid Transit
13. Brooklyn-Manhattan Transit
14. Interboro Rapid Transit
15. Brooklyn Battery Tunnel
16. Hudson & Manhattan RR
17. Holland Tunnel
18. Hudson & Manhattan RR
19. Pennsylvania RR
20. Lincoln Tunnel

Underground Life Lines of Manhattan

Third Lincoln Tube now brings total to 41... drilled with Ingersoll-Rand equipment

TWENTY vehicular tunnels now link Manhattan with the mainland, New Jersey and Long Island. Each tunnel consists of two separate bores. A third bore now being added to the Lincoln Tunnel will bring the total to 41. It will also keep Ingersoll-Rand's 79-year-old record intact. For here, as on all other Manhattan tubes since the very first one, Ingersoll-Rand drills have been used on the rock work.

The western end of this new Lincoln tube calls for driving through rock approximately 750 ft. of 34 ft. circular tunnel. It is being driven in two sections from the bottom of a shaft 130 ft. deep. After careful consideration of all modern tunnel driving methods, I-R Jackdrills and 1⅝" Carset Jackbits were selected for driving the top heading. The bench will be driven by Ingersoll-Rand Wagon Drills.

When it comes to drilling rock, remember that I-R can supply everything you need from the bit all the way back to the compressor. Let your Ingersoll-Rand representative help plan your next rock job. His experience may be of great value to you.

5-91

Ingersoll-Rand

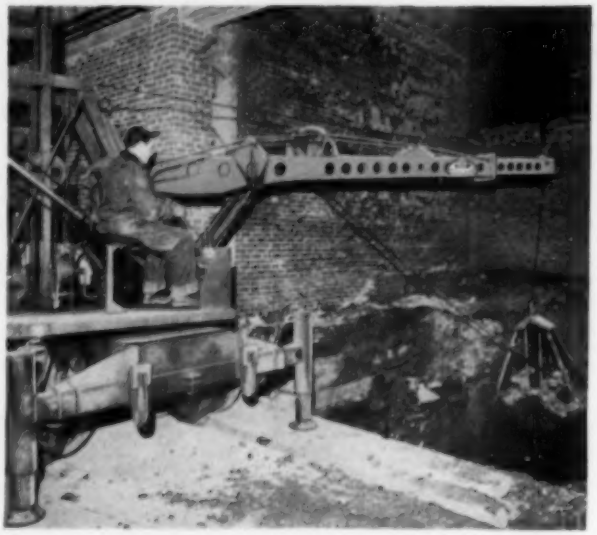
11 Broadway, New York 4, N. Y.

ROCK DRILLS • COMPRESSORS • AIR TOOLS • TURBO BLOWERS • CONDENSERS • PUMPS • OIL & GAS ENGINES

Hydrocrane Changes Boom Length While It Works— Lets You Cash in on the Impossible Jobs

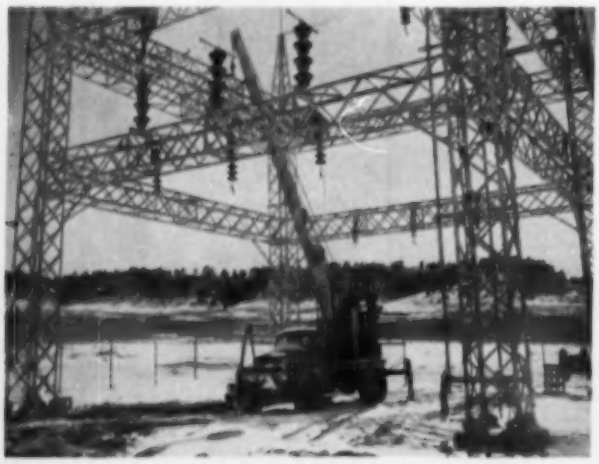
Eight feet of *extra* boom at your finger tip — that's the job-multiplying, time-saving advantage you get with a Bucyrus-Erie Hydrocrane. Telescoping section extends or retracts hydraulically — either *while boom is stationary or during boom hoist or line hoist.* With this outstanding feature operators have easily maneuvered loads in and out of quarters so cramped an ordinary crane wouldn't even get close.

These on-the-job pictures show a few of the spots where the Hydrocrane's telescoping boom made the difference — a difference your Bucyrus-Erie distributor will be happy to demonstrate right on your own job. It's something you must *see* to fully realize what it can do for you. 55H55C



Crane couldn't move closer— but the boom did!

This indoor excavation job is an excellent example of the versatile Hydrocrane boom in action. By reaching out to the far edges, the boom brought the entire area within reach of the clamshell — saved hours of costly hand labor. Boom had to be retracted during each swing cycle so as to clear building wall for dumping.



Extra reach meant extra speed on sub-station erection

This sub-station went up in a hurry with the combination of independent boom hoist, boom telescope, and the extra reach provided by the optional boom extension section. This steps up reach to 38 feet. Precision hydraulic control provided extra safe handling of fragile insulators. Telescoping boom poked in and out of framework while outriggers anchored crane solidly to the ground. Fifty mph travel speed saved time to and from job.

Sticks its nose into windows

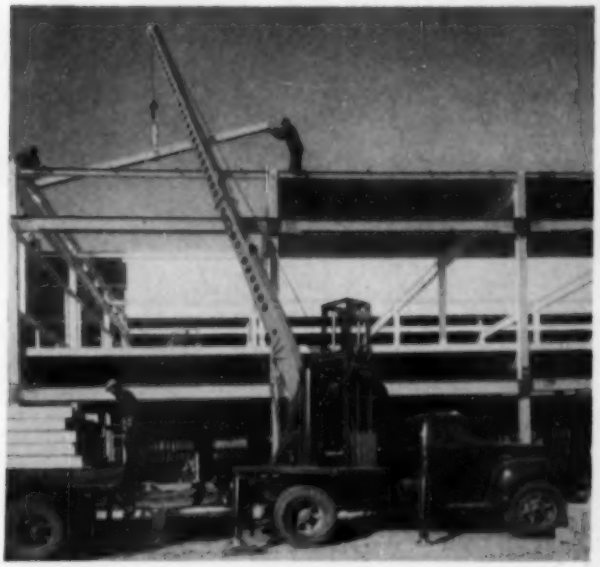
Here the Hydrocrane noses a steel beam into a window on a remodeling job. No need to jockey truck back and forth — telescoping boom turned the trick, smooth and quick. In fact, it was smooth all the way because every crane function — boom hoist, line hoist, swing, outrigger set and retract — operates through cushioned hydraulic power.

Boom tucked in for travel

Ability to slip in and out of crowded city traffic is almost a Hydrocrane trademark — and again credit the boom telescope. Boom is fully retracted and fits snugly over cab, resting securely on a strong bracket. And on open highways the Hydrocrane skims along at speeds up to 50 mph. Note, also, the power unit mounted on the upper deck. This engine powers the hydraulic system (power take-off from truck engine optional), with all engine controls conveniently located at operator's station.

Stopped by a wall— but saved by a boom!

Retaining wall prevented crane from maneuvering closer on this drainage trench job — but the boom simply reached out and handled the digging in short order. Clamshell closes by hydraulic power — provides effective bite at any angle. Note, too, that with telescoping boom both truck and crane can remain stationary. Operator merely raises and simultaneously telescopes boom to get bucket into dumping position.



"We'll take the Hydrocrane" say the pre-cast men

Jobs by the hundreds — thousands of feet of pre-cast concrete slabs smoothly and quickly installed — that's the story all over the country of pre-cast operators and their Hydrocranes. And owners report much of the credit for the successes of Hydrocranes in this work is the telescoping boom in combination with independent boom hoist. Its ability to slip in between girders—over walls—into windows—has been a big factor in setting 8,000 sq. ft. of concrete planking — and better — in a single day.

Boom telescope for Hydrohoe, too

Ability to extend and retract hoe boom is a big asset for the Hydrohoe, too. This feature, in conjunction with wrist-action dipper, provides a unique crowding force making it possible to undercut effectively and dig trenches deeper than they are long with vertical walls and level floor. Hoe is quickly convertible to crane boom in the field.

BUCYRUS ERIE

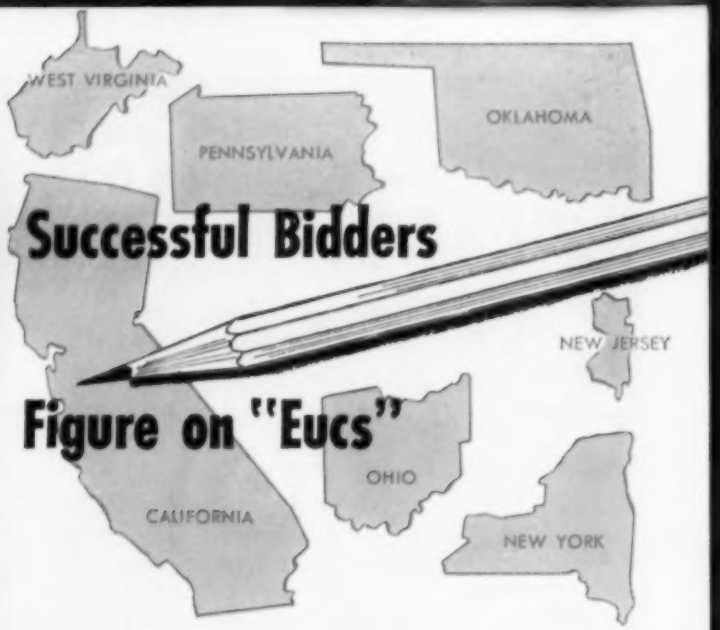
South Milwaukee, Wisconsin

NEW YORK THRUWAY—more than 500 "Eucs" of all types—Rear-Dumps, Scrapers, Bottom-Dumps and Loaders helped rush many sections of this 427 mile road to completion.

WEST VIRGINIA TURNPIKE—probably the most rugged test of equipment on all turnpikes to date because of the rocky, mountainous country. Of 275 off-highway rear-dump trucks used on the job, 260 of them were "Eucs".

CALIFORNIA—Euclid equipment has played an important part in building many of the modern super highways in the West. The "Euc" Scraper shown here is working on the Los Angeles Golden State Freeway.

OHIO—Bottom-Dumps and Euclid Loaders dominated the construction scene on the Ohio Turnpike. "Eucs" outnumbered all competitive rubber tired earth moving equipment by better than 4 to 1.



Successful Bidders Figure on "Eucs"

On almost every section of every turnpike project there's been mighty keen competition for the jobs—usually 10 or more bidders. When your competitors are using "Eucs" to move dirt or rock faster and cheaper, you just can't afford to pass up the cost-cutting advantages of Euclid equipment. That's why successful bidders on hundreds of earth moving projects base their estimates on the production performance of Euclids.

Money-making performance on all types of work is proved by the fact that over 60% of all Euclid equipment sold is repeat business from satisfied users.

FOR TOUGH ROCK JOBS...

and other heavy excavation, Rear-Dump "Eucs" are the logical choice as they were on the West Virginia Turnpike by more than 9 to 1. Capacities range from 10 to 50 tons with engines of 125 to 600 h.p., with some models equipped with Torqmatic Drive.

FOR BIG YARDAGE PRODUCTION...

the Loader and Bottom-Dump combination has no equal for high speed loading and hauling of earth and free flowing material. Bottom-Dumps have struck capacities of 13, 17 and 25 cu. yds. with loaded top speeds up to 35 m.p.h.

FOR SCRAPER JOBS...

big or small, there's a complete line with struck capacities of 7, 12, 15.5 and 18 cu. yds. High production and dependable job availability of "Euc" Scrapers has made them the fastest growing line in the industry. The "Twin Power" Scraper shown at the left has exceptional versatility—it's been a one-man earth moving spread on lots of jobs!

There are lots of reasons why the men who know equipment use "Eucs" but they all add up to this simple fact:

EUCS MOVE MORE LOADS PER HOUR AT THE LOWEST COST PER TON OR YARD

It's "Eucs" on the Indiana Turnpike now!

First contract on the Indiana Turnpike covering a 7.4 mile section was awarded to Rieth-Riley Construction Co. Grading is being done by Chapin & Chapin of Norwalk, Ohio—over a million cubic yards are to be moved. In the photograph, one of a fleet of 8 Euclid 15.5 cu. yd. Scrapers is shown working on an overpass northwest of South Bend.

Euclid equipment was used by most of the contractors who built our first super road — the Pennsylvania Turnpike — more than 15 years ago. Since that time "Eucs" have been the choice of contractors for grading work on just about every super-highway project from Maine to California.

The new Indiana Turnpike is no exception—Euclids will be used on nearly all of the grading contracts awarded to date. In fact, "Eucs" already outnumber competitive rubber tired equipment by a wide margin and many more will go to work when the job moves into high gear.

Men who bid these big jobs can't gamble on the selection of equipment — they have to play it safe with machines they can depend on to do the most work at the lowest overall cost. Even if you don't bid on these big projects, the same dependable low cost performance of "Eucs" can mean more profits — and more jobs — for you. Call your nearby Euclid dealer for help with any earth moving problems — he's at your service to help you make more money on every job.

"Eucs" paid off in performance on all of these toll road projects:

NEW YORK THRUWAY
PENNSYLVANIA TURNPIKE
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and on other highway jobs all over the world.

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Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

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AT THE LOWEST COST PER TON OR YARD

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Step into the new "production office" of the P&H Model Electric Shovels. Look at the control station. Can you imagine anything simpler?

What you can't imagine is the difference it makes with all operating motions electronically controlled. Response is faster, performance characteristics are improved. There's better co-ordination for the operator — and a total absence of physical effort. The new advantages made possible with complete electronic control account for up to 10% more production. And that means lower tonnage costs, of course.

P&H Electronic Control is dependable, thoroughly proved in the field. It now becomes standard on all P&H Electric Shovels — another example of the way P&H leads the field in Electric Shovel developments.

P&H Model 1800 Electric Shovel — 8 cubic yard machine

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These Ropes are available Internally Lubricated, PREformed, Lang Lay or Regular Lay, Fiber Core, or Independent Wire Rope Core. Wire combinations vary from 42 wires in 6 x 7 construction to 343 wires in 6 x 49 IWRC construction.

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★ Machine drills continuously for 32-⅔ feet before an additional drill pipe section must be added.

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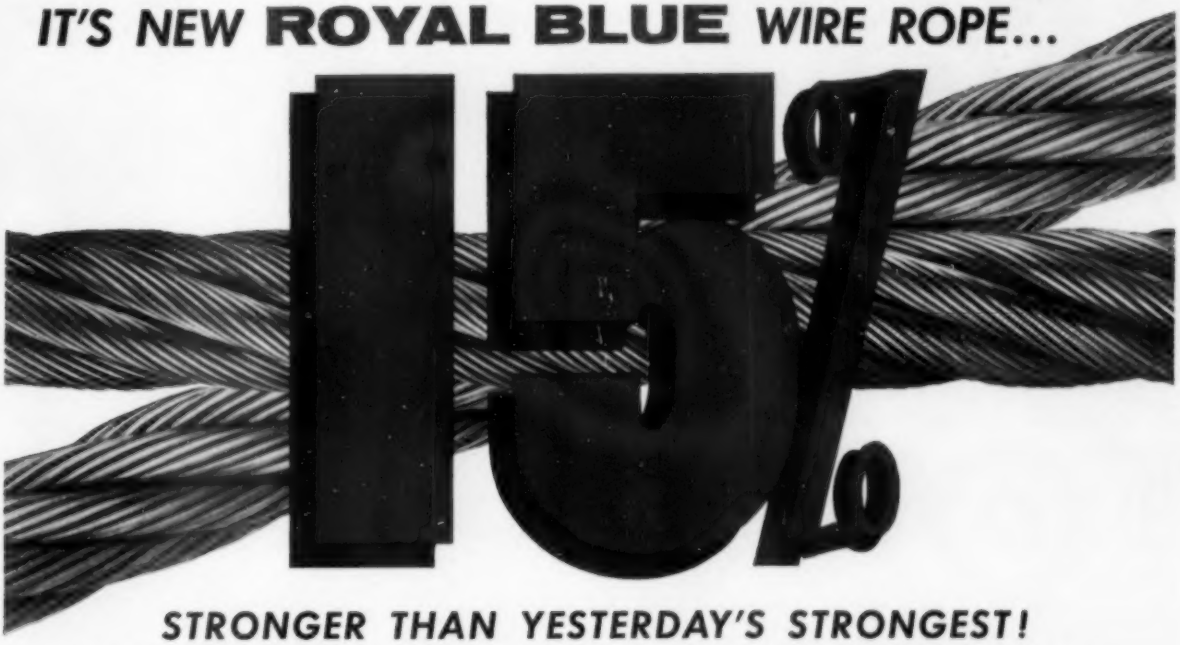

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Japan Promotes Hydroelectric Power

by Earle R. Edmiston

A 5 million kilowatt power output boost in 5 years; that's the ambitious Japanese program now in works. Goal will cost $2¼ billion. U. S. men and machines take key construction role.

THROUGH harnessing her fast-rushing rivers, Japan today is pressing forward a five-year power development program to open new vistas of economic growth as a Pacific bulwark against Communism, a vital expansion program in which American engineering "know-how" and American equipment is playing a major role.

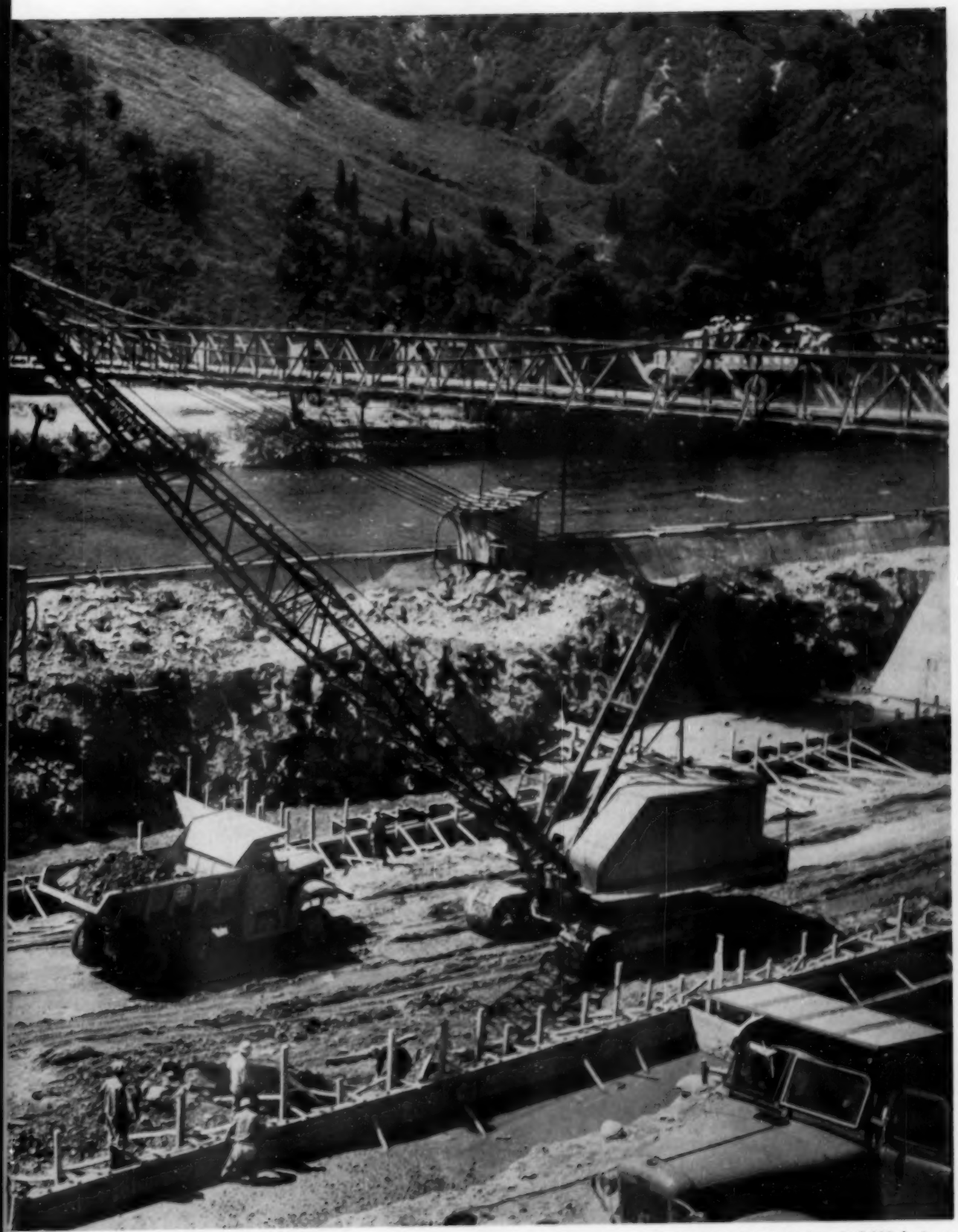
On a scale that involves all of the major rivers, this nation in 60 months hopes to boost its power production by more than five million kilowatts, involving a financial outlay of approximately $2,242,000,000—a terrific undertaking for a nation struggling to re-establish its world economy.

Included in the program is the greatest dam in Japan, the Sakuma Dam on the Tenryu River, which will rise to more than 500 feet and rank not only as the biggest dam in Japan, but as the seventh highest dam in the world.

In furious activity at the dam sites in Japan and representing a sizeable amount of the huge sum involved in the power program is American-made equipment bearing every trademark well known in the American excavating field.

Scope of the project is evident wherever one goes back up the mighty rivers of Japan's four main islands, Honshu, Hokkaido, Fukuoku and Kyushu, where dam building equipment is chewing away to the bedrock below diverting tunnels. It is equally evident in the busy

Japanese men operate Caterpillar D8 at work on high altitude job: construction of the world's seventh loftiest dam, Sakuma.



A Bucyrus-Erie 54-B rigged with crane front end places diversion works concrete at Tagokura Dam. It, too, is 5,000 feet up.

Tokyo offices of Japanese firms distributing American equipment. Over the docks at Yokohama passes a steady stream of such equipment, despite a rapidly expanding line of Japanese-made heavy machinery that too is doing its share in the expansion program.

Why all this activity on the part of Japan to develop more power? Basically, it's due to two factors: (1) that run-of-river type hydroelectric power plants have been predominant in Japan, with a power drop at the end of the run-off season, and (2) to depletion of coal reserves with which to run standby thermal power plants.

Power generation must be switched over to reservoir type hydroelectric power generation. Reduction of Japan's coal to a marginal point in recent years has necessitated a revision of the entire power production system.

From the end of World War II, Japan's efforts have been concentrated on reconstruction of the war shaken country. In the forefront of this program is the development of her power resources through properly harnessing the fast-running rivers, the utilization of hydroelectic power in which she is comparatively rich.

Power Outlook

The potential hydroelectric power generation capacity Japan holds is estimated approximately at 20 million kilowatts, about one-third of which had been developed by the end of 1953. Since World War II ended, about one and a half million kilowatt hydroelectric power and a half million kilowatt thermal power were developed. The result of development achieved in 1953 was the highest of all past years, but hardly touched the nation's needs.

The present program aims by 1957 at bringing the total generating capacity in the country to 11 million kilowatts in hydroelectric power and five million in thermal, a total of 16 million kilowatts.

Directing this huge expansion program is the Electric Power Development Co., Ltd., inaugurated in 1952 with an authorized capital of $280 million to expedite development of such resources in postwar Japan. In legal characteristics, it is a quasi-government corporation, as the government is required to hold more than one-half of the company's total

Three 54-B's feed Euclid fleet in gulch where Sakuma Dam will stand. Concrete will rise 529 feet. Note men on rock face, right.

American advisers on project praise Japanese handling of machines like this Euclid.

issued shares and the officers are appointed by the cabinet. The company differs from other electric power companies in that, as regards its loans in foreign currency, the government may guarantee redemption of principal and payment of interest.

Of the total financial requirement of $2,242,000,000 about $47 million is being supplied by foreign investment. For the foreign investment of $47 million, Japan has already been under contract for a loan with the United States World Bank. The requirement of $2,195,000,000 will be covered for the greater part by government funds.

Even though developing power at the fastest rate possible during the next five years, and despite the terrific cost, Japan still will find herself short of power. Demand for electric power tends to increase constantly by approximately 7% per year. And the austerity of the nation's plight keeps nibbling away at the original development program; the disbursement this year totaling 160,000 million yen as compared to the 170,000 million yen originally scheduled.

Help for Farmers

Paralleling this power program will be irrigation phases designed to increase agriculture in sorely-needed *cho* that may be carved from the hillsides. For only 14% of the land in Japan—slightly smaller in total area than the State of California and with a population half of the United States—is available for agriculture. This total is divided into 2.9 million *cho* (1 *cho* equals 2.45 acres) of paddy fields and 2.3 million *cho* farms. The percentage is low for Asiatic countries, such as 33% for India and 23% for Pakistan.

The relatively low agricultural area is due to the mountainous terrain—and through irrigation phases of the five-year plan it will be possible to use more hillsides on an incline of 30° such as one finds producing in Shikoku District. Japan's population is expanding by more than a million year after year, and more agricultural production is vital. The fact that its rivers have not been properly harnessed means the devastation of considerable farm land by the almost annual flood disaster caused by typhoons.

As a consequence of its heavy population-low production area situation Japan has to import three million tons annually of foodstuff. This with raw cotton features Japanese imports.

It is natural then that irrigation and drainage undertakings for the improvement of farm land should be provided for through the nation's Agricultural Land Improvement Law which stipulates that projects in this line shall be subsidized 50-60% from the treasury.

All of the projects now underway or under consideration are being planned with an overall calculation on flood control by means of the construction of dams, anti-erosion tree-planting and rivercourse improvement. The dams have the multiple objectives of power generation, agricultural irrigation and urban water supply.

The greatest natural resource which

Bucyrus-Erie 22-B Transit Crane lifts steel support for 6,500-ft. conveyor belt.

Japan has left is her potential hydroelectric resources, but development of them poses perplexing problems. One finds the most remote and secluded mountain areas populated, hence a problem of indemnity for land submerged by reservoir construction. Here the Multiple Purpose Land Development Law dovetails into the program through a solution based on multiple purpose hydroelectric power development.

Host of Power Projects

Japan's five-year power development program includes projects already approved on major rivers, including the nation's greatest dam—the Sakuma—with an outlay for present approved projects approximately $373 million.

The rivers and the projects on which work is underway are as follows:

Tokachi River System, 135,500 kw, consisting of the Nuhahira, 41,500 kw; Meto No. 1, 27,000 kw; Meto No. 2, 27,000 kw and Ashoro, 40,000 kw.

Ishikari River system, 23,700 kw, consisting of the Kumaci, 5,000 kw; Katsurazawa, 15,900 and Mikasa, 2,800 kw.

Kitakami River system, 41,600 kw, consisting of Sarugasish No. 1, 27,000 kw and Izawa No. 1, 14,600 kw.

Tadami River and Shinano River systems, 436,500 kw, consisting of the Tagokura, 150,000 kw; Okutadama, 225,000 kw and Kuromata-gawa No. 1, 61,500 kw.

Tenryu River System, 426,200 kw, consisting of the Sakuma, 350,000 kw; Akiba No. 1, 43,200 kw and Akiba No. 2, 33,000 kw.

Sho River system, 142,000 kw, consisting of the Miboro project.

Totsu and Kino River systems, 46,100 kw, consisting of Nishi-Yoshino No. 2, 13,100 kw.

Kuma River system, 18,700 kw, consisting of the Setoishi Dam.

The Tenryu River, site of the Sakuma and Akiba, rises from Lake Suwa in Nagano Prefecture and runs through a valley formed by the massive mountain ranges of Akaishi and Kiso, traversing Japan's main Honshu Island from north to south and drains itself into the Pacific Ocean.

The river is one of the largest in the country and its drainage area is approximately 8,340 square kilometers. The same as other rivers flowing into the Pacific, it has abundant rainfall from the summer monsoons but comparatively scanty rain during winter.

Technological assistance at the Sakuma project, greatest of these, is provided by the Guy F. Atkinson Company, with main offices in South San Francisco. Here there has risen in the verdant mountains at the damsite a community of 75 Americans, consisting of approximately 35 Atkinson employees and their families. It is a modern western-type community in sharp contrast with its setting in a typical Japanese section far up the Tenryu River.

The firm of Guy F. Atkinson was retained by the Electric Power Development Co. because Japan wanted to get the best experience in carrying out such a large scale construction project. Previously the nation's geographical conditions have restricted her experience in this line to a minor scale. Company officials on the job, started in April, 1953, and expected to be completed in three years, say it is comparable in scope and in natural conditions to Boulder Dam.

The Sakuma project will be a gravity type concrete dam rising 161.5 meters, or approximately 529 feet above foundation rock, at a site on the Tenryu 54 miles below Hiraoka Power Plant and three miles above the crossing of the Iida line of the National Railway over the river. It will create a reservoir 248 million cubic yards in gross storage, with 154 million cubic yards in available storage.

Sakuma's Scope

The maximum capacity of the power plant will be 1,347 million kilowatts annually. Drainage area at this point is 1,478 square miles, accounting for 46% of the total area of the river basin, so that the runoff is abundant enough to insure the maximum discharge of 6,264 cubic feet per second.

Sakuma Dam will measure 800 feet in crest length. Into the massive structure will go 2,420,000 tons of concrete and 40,000 tons of steel. Construction is being completed on a belt conveyor which will bear the gravel and sand aggregates from a deposit 6,500 feet downstream from the damsite.

The pressure tunnels will be two in number, 22.8 feet in diameter and 3,373 feet in length.

Work on the dam is made possible by creation of two diversion tunnels 22.8 feet in diameter, from which the excavated rock and earth were used for con-

Rigs like Japan-made Tournapull were feature of last summer's exposition in Tokyo.

Two 2½-yd. Bucyrus-Erie dragshovels take cut down to base rock. In 60 months, Japan plans to add 5 million kw to its output.

structing access roads and cofferdams. The full face excavation method has been employed, with 16 drills operating with a progress capacity of 23 feet per day. The diversion tunnels have a capacity for discharging 29,780 cubic feet per second.

Pipe cooling will be employed for the lower part of the concrete work close to the rock foundation, and a pre-cooling method for placing concrete in the upper part of the dam. The cooling plant will have an ice making capacity of 750 tons per day. Batching plants combined with cooling plant systems first were employed in Japan by the Kansai Electric Power Development Co. for construction work at Maruyama, and Sakuma is the second project to use this method with variations. The concrete placing temperature will be between four degrees Centigrade and 15° Centigrade. The maximum capacity of concrete placing is scheduled at 114,000 cubic yards per month.

For the first time in dam construction in Japan, there is being employed at the Sakuma project a high speed cable crane of 25 tons which can carry concrete buckets eight cubic yards in capacity and operate in conjunction with transfer cars.

First roads at the damsite were built on the hillsides, but experience has proven that it is more practical to drill tunnels through the projecting shoulders of the mountains. Geological conditions have forced the adoption of the latter type of road construction as the best from the standpoint of safety and economy.

Pond Controls Flow

When the Sakuma power plant is in full operation the quantity of water discharged from the plant will fluctuate heavily downstream, and without any other barrier, irrigation facilities for paddy fields would be jeopardized.

Because of this situation, a regulating pond must be provided downstream from Sakuma, and there comes in Akiba Project No. 1 and Akiba Project No. 2. Akiba Power Plant No. 1 will have a maximum capacity of 43,200 kilowatts with a maximum discharge of 83 cubic yards per second, while Akiba Plant No. 2 will have a maximum capacity of 33,000 kilowatts with the same maximum discharge. Akiba No. 1 will be two miles downstream from the dam, connected with a pressure tunnel having a maximum effective head of 47 meters and will be in continuous operation as a base load station. Plant No. 2, located directly below the dam and having a maximum effective head of 35 meters, will be in occasional operation when surplus water is available.

Continued on page 46

A 100-ft. boom and 20-ft. jib give Bucyrus-Erie 54-B crane more than enough reach to hit the deck corners with transit mix.

McHugh Erects Addition to Milwaukee Hospital

The James McHugh Construction Co. handles concrete placing operations in construction of an $11 million, 11-story reinforced concrete structure with two long-boomed crawler cranes.

AN $11 million hospital unit is being added to Milwaukee County General Hospital at Wauwatosa, Wis., by James McHugh Construction Co., Chicago, Ill. The reinforced concrete structure is going up with smooth precision that minimizes disruption of normal hospital activity. Concrete pouring operations on the tall building are handled by two Bucyrus-Erie cranes which take the mix direct from transit trucks.

The new unit adjoins an older building and is connected to it at several

floor levels. Functionally, it is designed to centralize many present county medical facilities in one building and to relieve crowded conditions in the present outmoded structure built in 1930. Space will be provided for 600 additional beds, doubling patient capacity at the hospital. About 300 beds are to be allocated to care of neuropsychiatric cases. The building will also house a central Department of Pathology and an outpatient clinic to accommodate 300,000 outpatients annually. The clinic is now located in downtown Milwaukee.

The addition will be financed almost

A Caterpillar D4 shovel takes gravel from stockpile and places it around foundation footings as specifications require. Addition will give hospital 600 more beds.

Here an M-65 Bay City 1¼-yd. shovel takes out a share of the 105,000 yards of excavation needed. Contractor McHugh is an experienced hand at hospital construction.

Earl Acker, Milwaukee driller, brings Bucyrus-Erie 20-W rig on job for test bores.

Gravel was placed around the inaccessible concrete footings with this Bucyrus-Erie 38-B crane swinging a 1-yd. Insley concrete bucket charged with gravel backfill.

entirely by a bond issue authorized in 1953 by the Milwaukee County Board of Supervisors. Bonds are sold on an annual basis as the need for construction funds occurs. While all of the bonds have not yet been sold, it is estimated the final maturity date will be the year 1963. The only funds provided other than from bond issues was an amount of $100,000 for the original preliminary planning.

Associated architects and engineers appointed by the county for design, supervision and administration of the project are Schmidt, Garden & Erickson, Chicago, and Brust & Brust, Milwaukee.

Masonry Materials

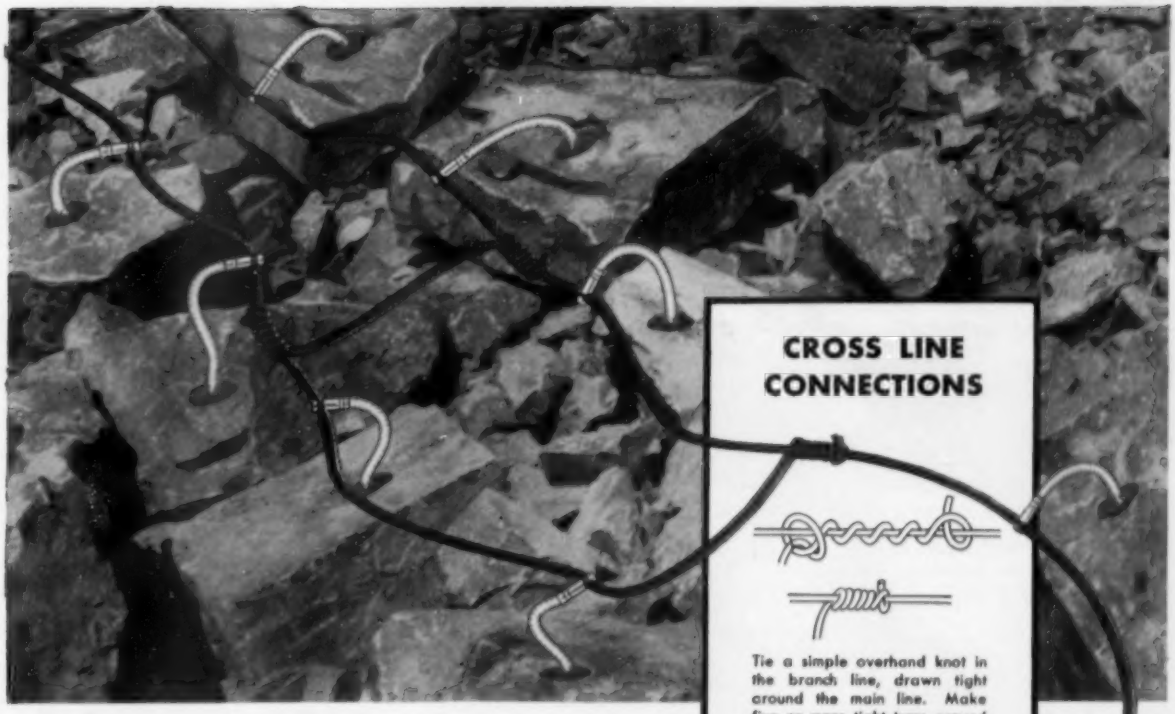
Exterior wall construction employs conventional buff brick facing to match the older structure, with concrete back-up block. Bluestone, lannon stone, Indiana limestone, and Granux are featured in the building's modern lines. Interior flooring will be terrazzo and tile. Structural glazed tile and ceramic tile will line corridors. Building height above sidewalk grade is 147 feet. Major dimensions are 420 feet in either direction, excluding an auditorium wing.

McHugh, the primary contractor, began the three-year undertaking in February, 1954. Concrete requirement is 28,000 cubic yards: 20,000 in the structure itself and 8,000 in footings. Steel used will include 2,050 tons of CECO reinforcing bars and a minor amount of structural sections.

Excavation, mostly clay, amounts to 105,000 cubic yards. Speedway Contracting Co., Milwaukee, was the excavating subcontractor. Speedway handled its part of the job with a 1¼-yd. Bay City M-65 shovel, ¾-yd. Koehring dragshovel and a ¾-yd. Bucyrus-Erie 22-B dragshovel. A pair of Tournapulls stripped topsoil from the building site in February, 1954. A fleet of nine International 8-yd. dump trucks hauled excavated material to a fill area on county property about 1¼ miles away. About 15,000 yards of the total excavation was for footings. A Cat D8 dozer removed some 500 feet of tunnel passageways.

Foundation design utilizes spread footings except for the core of the building which is placed on concrete caissons founded on rock. Original test borings indicated the desirability of using spread footings exclusively. Later borings disclosed a sharp rise in the underlying Niagara limestone formation that necessitated a change in plans. A large 69 x

Continued on page 31



CROSS LINE CONNECTIONS

Tie a simple overhand knot in the branch line, drawn tight around the main line. Make five or more tight turns around the main line and pull end tight through last loop.

MAIN LINE CONNECTIONS

Lay ends parallel and tie them together with two overhand knots, pulled up tight.

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Big chunks in a rock pile can cover a lot of territory. You'd like to break them up "pop-pop-pop" in one operation. You want to be able to do this safely when it's convenient, even while thunderstorms threaten. And every man must be off the rock pile before the first hole goes!

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It's very important to plan the hook-up so that each safety fuse has burned below the collar of the hole before the first charges fire. You can do this by using cross connections as shown at the right.

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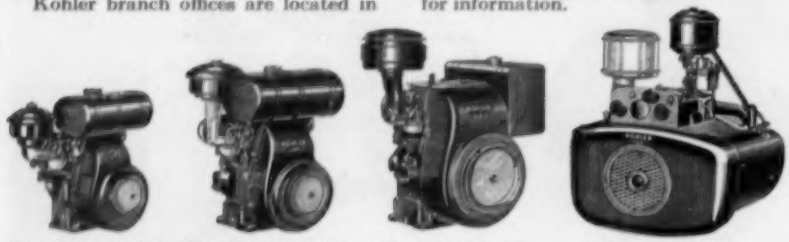

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Bank Building, Richmond 19, Virginia
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Voss-Hutton-Barbee Co., *Little Rock*

CALIFORNIA
West Coast Engine & Equipment Co., *Berkeley*
Generator Equipment Co., *Los Angeles*
Langner & Rifkin, *Sacramento*

COLORADO
Snodgrass & Smith Co., *Denver*
Waukesha Engine & Equipment Co., *Denver*

CONNECTICUT
General Machine Parts Co., *New York, N. Y.*

DELAWARE
Motive Supply Co., *Baltimore, Md.*

DISTRICT OF COLUMBIA
Motive Supply Co., *Baltimore, Md.*

FLORIDA
Baird-Hardware Co., *Gainesville*
Florida-Georgia Distributing Co., *Jacksonville*
J. Frank Knorr, Inc., *Miami*
General Engine & Equipment Co., *Tampa*

GEORGIA
Industrial Service Company, *Atlanta*
Lawn Equip. & Garden Supplies, *Atlanta*

IDAHO
Diesel Electric Service & Supply Co.,
Salt Lake City, Utah
Equipment Sales & Service, *Spokane, Wash.*

ILLINOIS
Holtkamp Electric Service Co., *Centralia*
Arrow Contractors Equipment Co., *Chicago*

INDIANA
Holtkamp Electric Service Co., *Evansville*
Central Rubber & Supply Co., *Indianapolis*
C. C. Kelly & Son, *Mishawaka*

IOWA
Des Moines Iron Company, *Des Moines*
Sieg–Sioux City Company, *Sioux City*

KANSAS
Scheufler Supply Co., Inc., *Great Bend*
AAA Engine & Electric, Inc., *Kansas City*
The S. A. Long Co., Inc., *Wichita*

KENTUCKY
Ellingsworth Auto Electric Co., *Louisville*

LOUISIANA
Waukesha Sales & Service, Inc., *New Iberia*
Reagan Equipment Co., *New Orleans*
Waukesha Sales & Service, Inc., *Shreveport*

MAINE
Bangor Tire Co., *Bangor*

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Motive Supply Co., *Baltimore*

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MICHIGAN
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S & S Auto Parts Company, *Duluth*
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MISSISSIPPI
Brooks-Noble Auto Parts & Machine Co., Inc.,
Jackson
Reagan Equipment Company, *Natchez*

MISSOURI
J. Burdman Auto Parts, Inc., *Kirksville*
Holtkamp Electric Service Co., *St. Louis*

MONTANA
H. B. Mann & Co., *Billings*
Ferris-Killion Implement & Hardware Co.,
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NEBRASKA
The Island Supply Company, *Grand Island*

NEVADA
Gardner Automotive Parts, *Reno*

NEW HAMPSHIRE
New England Engine & Parts Co., *Boston, Mass.*
Goldberg's Auto Service, Inc., *St. Johnsbury, Vt.*

NEW JERSEY
United Tractor & Equipment Co., *Lodi*

NEW MEXICO
Hill's Auto Electric Service, *Albuquerque*
Waukesha Sales & Service, Inc., *Hobbs*

NEW YORK
Hettrich Electric Service, *Buffalo*
General Machine Parts Co., *New York*

NORTH CAROLINA
Southern Bearings & Parts Co., Inc., *Charlotte*
Motor Bearings & Parts Co. of Durham, Inc.
Motor Bearings & Parts Co. of Goldsboro, Inc.
Motor Bearings & Parts Co. of Greensboro, Inc.
Motor Bearings & Parts Co. of Raleigh, Inc.
Motor Bearings & Parts Co.
of Rocky Mount, Inc.

NORTH DAKOTA
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Grand Forks Supply Co., *Grand Forks*
Minot Supply Company, *Minot*

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Nook and O'Neill, Inc., *Cleveland*
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Truck & Industrial Equipment Co., *Portland*

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RHODE ISLAND
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Hub City Iron Company, *Aberdeen*
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Rapid City Implement Co., *Rapid City*
L & L Motor Supply Company, *Sioux Falls*

TENNESSEE
Tennessee Mill & Mine Co., *Knoxville*
Hawkins Equipment Co., *Memphis*
Precision Parts Corporation, *Nashville*

TEXAS
Momsen Dunnegan Ryan Company, *El Paso*
Tri-State Equipment Co., *El Paso*
Waukesha Sales & Service, Inc., *Corpus Christi*
Waukesha Sales & Service, Inc., *Dallas*
Waukesha Sales & Service, Inc., *Houston*
Waukesha Sales & Service, Inc., *Kilgore*
Waukesha Sales & Service, Inc., *McAllen*
Waukesha Sales & Service, Inc., *Odessa*
Waukesha Sales & Service, Inc., *Pampa*
Waukesha Sales & Service, Inc., *Snyder*
Waukesha Sales & Service, Inc., *Wichita Falls*

UTAH
Diesel Electric Service & Supply Co.,
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VERMONT
Louis J. Salebra, *Rutland*
Goldberg's Auto Service, Inc., *St. Johnsbury*

VIRGINIA
Richmond Power Equipment Co., Inc.,
Richmond

WASHINGTON
Northwest Industrial Equipment Co., *Seattle*
Equipment Sales & Service, *Spokane*

WEST VIRGINIA
West Virginia Mine Supply Co., *Clarksburg*

WISCONSIN
Johnson Motors & Supply, Inc., *Eau Claire*
R. L. Ryerson Co., *Milwaukee*

WYOMING
Casper Supply Co., *Casper*
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AIR-COOLED ENGINES • PRECISION CONTROLS

McHugh . . .

Continued from page 28

92-ft. footing designed for the core of the building was eliminated since the presence of the rock formation would tend to cause an uneven bearing: consequently, elevator pits and adjacent areas were placed on 34 bell-bottomed concrete caissons sunk 23 to 24 feet below basement grade. Shaft diameters were three to six feet belled out to six to eight feet. Case Foundation Co., Bartlett, Ill., bored the holes with a special rotary rig equipped with an expansion auger

Concrete Placing

Concrete is poured by two Bucyrus-Erie cranes—a 54-B with a 100-ft. boom and a 20-ft. jib, and a 38-B with an 80-ft. boom. Average weekly pour is about 400 cubic yards. Transit-mixed concrete is supplied by Tews Lime and Cement Co. from its West Allis batch plant. Specifications call for Type I—A.S.T.M. Portland cement concrete. Coarse aggregates for concrete footings and 14-in. and thicker walls are minus 1½-in.; for all other reinforced concrete, minus ¾-in.

High lifts of concrete to upper floors are made by the operator of the jib—equipped 54-B with the assistance of a spotter stationed on the pouring level. The crane is an independent boom hoist type machine and has a power controlled main hoist line. On the lower floor work, concrete buckets are emptied directly in the forms; pours on intermediate levels are made into buggies which carry the material to areas beyond reach of the boom extension; on the uppermost floors, an Archer tower with skip-hoist will be used for pouring concrete.

Homelite and MacGinnes equipment is used for concrete vibration. Sonnborn lacquer curing is sprayed on with a garden-type sprayer. Three Mall concrete grinders handle finishing. Most floors are 14½-in. thick; some are 16½-in. thick. They are of pan-joist construction, using CECO pans. Concrete is specified to have an ultimate compressive strength of 3,000 psi at 28 days.

During peak periods of activity labor force on the job runs as high as 250 men. Construction superintendent is Erwin Mueller. George Weinberg is project engineer and Phil Weber office manager. Job foreman for Speedway was Charles Merriweather. The Milwaukee County Institutions supervisors are James Emery and David Stewart.

Other contractors include Wenzel & Henoch, plumbing and heating; Herman

Continued on page 46

Architect's drawing shows new construction, right, and the present hospital, left.

Superintendent Erv Miller and Project Engineer George Weinberg are McHugh vets.

Excavating sub-contractor, Speedway Co., had this ¾-yd. Koehring back hoe at the job site. Eight-yard Internationals did most of the dirt hauling from the excavators.

PRESENTING THE NEW International

THE NEW, 200 NET HORSEPOWER INTERNATIONAL TD-24, most powerful Torque Converter crawler on the market, developing 59,500 lbs. maximum drawbar pull at a workable speed of 0.8 m.p.h. brings new speed, new maneuverability to any pushloading job. And for logging and pipeline work, too, nothing can match this latest addition to the long line of INTERNATIONAL Industrial Power products for smooth, efficient power.

TD 24 TORQUE CONVERTER

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Greater power—200 net engine h.p.; greater pull—59,500 lb. maximum drawbar pull at 0.8 m.p.h.; matchless maneuverability—finger-tip steering with famous Planet Power Drive in combination with four forward and four reverse speeds; all the features that mean greater operator ease, greater operational economy on your biggest jobs

For the largest earthmoving projects . . . for laying big pipe faster and surer . . . for attaining new highs in logging production . . . this is it.

The new INTERNATIONAL 200 horsepower TD-24 Torque Converter crawler tractor.

Features that put the new Torque Converter TD-24 in the No. 1 spot include:

- World's most productive torque converter system—multiplies torque up to five times.
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- Instantaneous high-low range shift with all transmission shifting being done with *just one gear shift lever.*
- INTERNATIONAL'S exclusive "Decelerator" feature gives the operator complete control of the crawler's engine speed at all times. In pushloading, this enables him to match the speed of the pusher to that of the scraper and make smooth contact without jarring pushed equipment or its operator. It takes the shock loads out of shifting . . . gives a smoother performing machine on the pipelines and pulling belt loaders, as well as on 'dozing jobs.

All attachments to the standard INTERNATIONAL TD-24 are interchangeable with the Torque Converter model, including push-plates, bulldozers, *Bullgraders* and sidebooms.

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PUSHLOADING is faster, easier with an INTERNATIONAL TD-24 Torque Converter. When the new crawler is paired with INTERNATIONAL high-speed earthmovers, contractors have a combination that can't be touched for long-haul performance. You get the heavy push you want at the speed you need for steady contact without gear shifting. This great power plus control means far greater safety, far less wear and tear on men and equipment.

Pipeline in the Sand

by Ray Day

ON THE all-important west end of Los Angeles International Airport, where aviation officials have waited eagerly for years for something constructive to happen, the first signs of a major construction program are visible. J. Tomei & Sons Construction Co. of Los Angeles is beginning an expansion program which ultimately will make Los Angeles International Airport one of the great aviation terminals of the nation.

Work under Tomei's contract includes the 1,500-ft. extension of two 75-ft. taxiways, and the construction of approximately 5,000 linear feet of large-diameter reinforced-concrete storm drain, designed to take surface water off the airport. Started December 1, 1954, the project is tentatively scheduled for completion by March 31, 1955. The job also includes construction of a major service road directly over the concrete storm drain, with connecting catch basins leading down from the curb lines to connect with the storm drain system.

Probably no major airport in the United States had more severe growing pains than the Los Angeles International Airport. National and international air traffic from the southern California city is expanding more rapidly than the citizens of Los Angles can visualize. Los Angeles, too, has money troubles. The immediate expenditure of possibly $35 to $40 million would complete the ulti-

Contractor Tomei lays sewer across Los Angeles International Airport. International TD-24 blades sand aside; 38-B sets pipe.

mate expansion of the airport and put it on a self-sustaining, profit-making basis. Bond proposals for that expenditure have twice been defeated, both times by a slim margin. As a result, work under the Tomei contract is being financed through current revenue.

The airport is now so glutted with air traffic that not a single additional airline could be accomodated unless that airline was willing to finance 100 per cent of the cost of its ground facilities. When Scandinavian Airlines recently inaugurated its trans-polar flight between Los Angeles and Stockholm, it was on this 100 per cent privately-financed basis. Negotiations also are underway with a Japanese airline, which would like to do the same thing, but needs

Left to right: General Super Perry Tomei, Inspector Al Sutcliffe and Contractor Julio Tomei stand for camera beside section of newly-laid reinforced concrete drain.

some U. S. help. Meanwhile, U. S. airlines using Los Angeles International Airport — TWA, American Airlines, United, Pan-American, and others — are hard-pressed for space. The taxiway extensions which Tomei has under construction are being built to let planes on the present airfield use major service hangars about to be constructed on the west property. Transcontinental World Airlines and American Airlines are each planning immediate construction of such hangar facilities.

In its ultimate expansion program, Los Angeles Airport will have a major landing runway, occupying the field's present facilities. Planes landing there may wheel directly into a new airline terminal building which will be built any time funds permit. Also, a whole new system of separate take-off runways is to be built. That in itself should eliminate much of the cross traffic and confusion now existing at the airport. When the ultimate expansion is completed, the present terminal facilities at the east end of the field will be used for the administration of freight shipments. Other freight facilities are to be built nearby. The new Administration Building will separate incoming and outgoing passenger traffic, and the freight flights will be separated from passenger traffic by confining freight operations to the present east field. It may take several more years to achieve that ultimate goal. But when it's reached, the Los Angeles Air Terminal will be one of the most efficient installations of its kind in this country.

Buy Bennett Ranch

The delay in financing construction work does not reflect any lack of foresight on the part of the Los Angeles Department of Airports. That agency, for some years, has been wide awake to the ever-increasing demands of air traffic in and out of southern California's principal city. In recognition of that fact, the city, shortly after the close of World War II, purchased one square mile of the old Bennett Ranch, covering the west half of the air terminal. In 1948, a series of contracts was let to grade approximately 12 million cubic yards of sand and other good material. That was necessary in order to level the site, so that it would be shaped as an airport should be. In this initial grading operation some cuts as deep as 50 feet were made to remove some of the high sand dunes and ridges, and many low spots were filled. In moving the 12 million cubic-yard job, not a single cubic yard was hauled off of the airport limits. While that work was important,

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Big-inch concrete storm drain leads off on construction at west end of Los Angeles International Airport as contractor, J. Tomei & Sons Construction Co., whips sandy ground problems.

THE NEW **M-R-S 200** and WOOLDRIDGE-M-R-S 30 c.y. struck SCRAPER

THE PROFITABLE COMBINATION TO MEET TOMORROW'S COMPETITIVE PRICES!

335 H.P.!

30 C.Y. STRUCK CAPACITY!

The new M-R-S 200 Tractor and the new Wooldridge-M-R-S OS-300 Scraper are teamed up for highest production at the lowest possible cost per cubic yard.

Why try to meet today's intense competition with yesterday's low performance equipment. Let us show you how this modern combination can mean higher profits for you in 1955 and for many years to come through higher capacity, faster hauling speeds, and superior maneuverability. INVESTIGATE BEFORE YOU INVEST. Contact your nearest M-R-S dealer or write today for full details on the Wooldridge-M-R-S hauling team, the earth-moving combination of the future, available for you today.

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The M-R-S 200—335 horsepower. Self-load to 18 cubic yard struck capacity scrapers—power to 30 yard struck scrapers pusher loaded.

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There is a tractor in the new M-R-S line with power and capacity to fit every earthmoving need. M-R-S tractors, teamed with the Wooldridge — M-R-S line of advanced-design, open-bowl scrapers, assure the contractor of the most modern equipment available today. With tractors from 180 to 335 horsepower and scrapers from 8.4 to 30 cubic yards struck capacity, the M-R-S principle of operation, utilizing the exclusive M-R-S WEIGHT TRANSFER feature, constitutes the most modern and versatile earthmoving family ever before offered to the construction industry.

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INVESTIGATE BEFORE YOU INVEST!

THE EMBLEM OF DEPENDABILITY

M-R-S MANUFACTURING COMPANY

FLORA, MISSISSIPPI

Pipeline . . .

Continued from page 35

of course, all it really accomplished in view of subsequent financing difficulties was the establishment of a choice area for the growth of weeds. The work which Tomei is doing includes the first major disturbance of the ground since it was laid down.

Water, Gas and Sewer

In addition to the taxiway and storm sewer facilties which Tomei is putting in, utility lines to serve the area also are about to be placed under contract by the Los Angeles Department of Airports. These utilities will include a 12-in. high-pressure water line, a 6-in. natural gas line, and sewerage lines. These will be connected to the existing airport facilities. One of the features of the high-pressure water line is the fact that it has two sources of supply, thus eliminating the possibility of a water failure at the field.

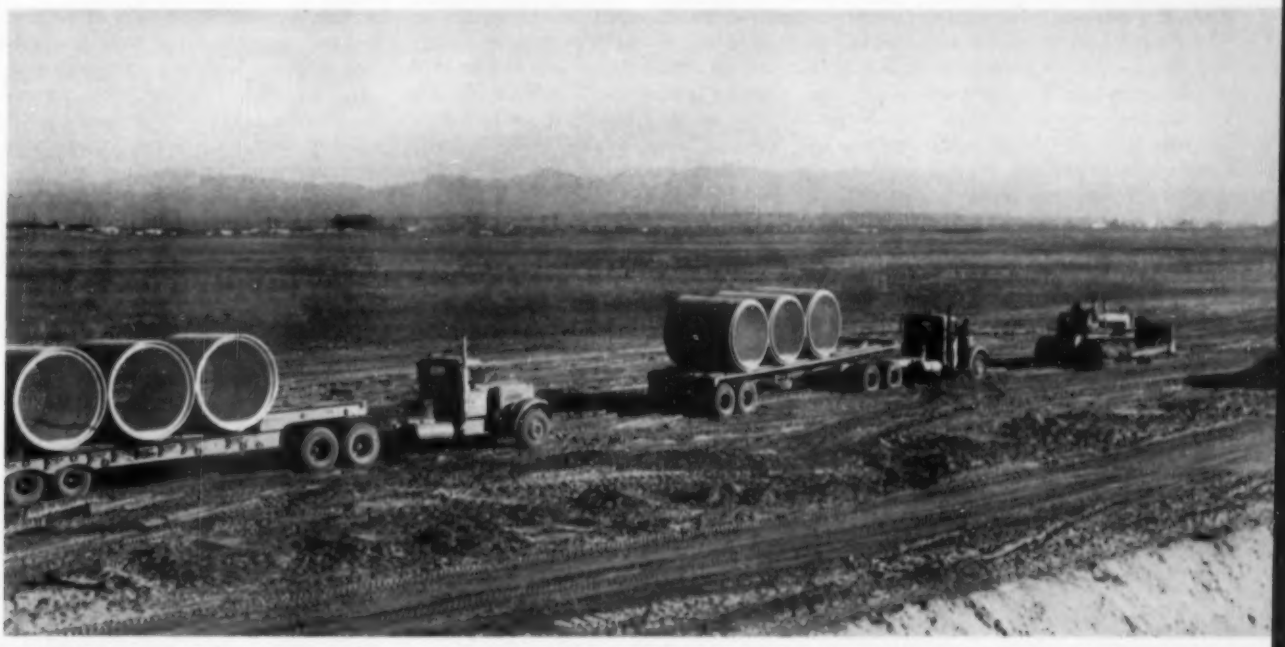
In relation to the volume of Tomei's construction contract, the installation of the 5,000-ft. storm sewer comprises approximately 50% of the work. The line starts at 45-in. diameter at the east end of the west half of the field, near the site of the new Administration Building. It ends at a natural low point west of Pacific Coast Highway near great sand dunes along the seashore. The storm sewer with 78-in. diameter pipe will discharge into spreading grounds over this formation, and officials hope to replenish underground water supply and to repel the ever-encroaching salinity caused by the infiltration of sea water underground into fresh water aquifers along the Pacific Coast.

The storm sewer has been located so that it centers exactly beneath a major service road, fronting the future hangar area. The line comprises 844 feet of 45-in. diameter; 740 feet of 57-in. diameter; 640 feet of 66-in. diameter; 2,000 linear feet of 72-in. diameter; and 900 feet of 78-in. diameter pipe. The line consists of heavily reinforced concrete pipe, with male and female slip-type joints without rubber gaskets. Strength-wise, it is all 1200-D pipe.

Surface water from the street directly overhead will enter the storm sewer pipe through a series of scuppers and lateral inlets. In addition to the surface water from the street, the storm drain will carry run-off from the hangar area, from the new Administration Building site, and other areas around the field.

Under the general supervision of Perry Tomei, excavation for the storm drain jumped off to a running start. For the main ditch excavation, Tomei brought in a Bucyrus-Erie 38-B dragline rented

Quickly converted to dragline, the 38-B swings 1½-yd. Hendrix bucket from its 50-ft. boom to dig trench to close tolerances.



Soft sand and muck bring heavy pipe load to a temporary halt until the TD-24 tractor can back up and pull the truck through.

from C. G. Willis & Sons, Los Angeles contractors. The machine was equipped with a 50-ft. boom and a 1½-cubic-yard Hendrix perforated bucket. This type bucket was considered especially suitable for digging the fine sandy formation.

At first, the ditch excavation job appeared easy. The material consisted of practically all sand, with a small amount of loam present. The ditch ranged up to 17 feet in depth and averaged about 8 feet wide on the bottom, including all sizes of pipe. It was excavated with 1:1 side slopes, which meant that in the deepest sections the top width was approximately 40 feet. Excavation began at the discharge end of the storm sewer and continued upgrade toward the east or entrance end.

One of the unique features about this excavation was the fact that the 38-B operator not only accounted for about 400 linear feet of ditch in nine hours—and that amounted to approximately 3,000 cubic yards—but he did the job so neatly and precisely that only one laborer was needed to keep up with the finegrade. And even so, that laborer didn't have to work hard. According to Superintendent Perry Tomei, it was one of the neatest examples of precise excavation in a ditch which he had ever seen.

"How many times have you seen a ditch dug under practically the same conditions with just the opposite result?" he asked. "You know how it goes: there are three or four laborers, and usually a dozer working almost full time in the bottom of the ditch, shoving material up ahead to the dragline. It wasn't necessary here because of the skill of that operator."

Sand A-Plenty

Excavated sand dug by the 38-B dragline was deposited by casting the material to the south side of the ditch for a temporary stockpile. Excess material left over after the final backfill operation was then used in the construction of taxiway extensions and the final grade for the service road, which lies just above the storm drain.

Although the sandy material was generally excellent for subgrade material, it quickly began to pose one of the most serious problems of the job. While the sand dug easily and was nice for machines to handle, the very nature of the material soon caused quite a traffic jam. Delivery trucks bringing in pipe began to bog down, even though a service road had been built. For quite a few weeks, the International TD-24 tractor which Tomei had assigned to the work did hardly anything else but assist loads

The lateral connections leading to drain scuppers in the ultimate street above were tricky to install. Here's how an opening was left in the big concrete storm line.

of pipe into the placing operation. Everything on rubber tires tended to bog, with the possible exception of a Bucyrus-Erie Transit Crane which was used in pipe-placing work. But the mirring down of vehicles in the sand was an important cause of delays.

The reinforced-concrete pipe sections for the storm drain were produced locally in the Baldwin Park plant of United Concrete Pipe Corp. After being manufactured and aged for the required length of time under live steam, the sections were loaded on trucks and semi-trailers and hauled to the job, three units per load. When the pipe sections arrived along the ditch line, they were unloaded by the winches on the trucks, if possible. If not, they were picked up and either unloaded or swung directly into the ditch by the Bucyrus-Erie 38-B dragline which also doubled over as a crane, or by a new Bucyrus-Erie 22-B Transit Crane, which Tomei recently purchased from Crook Co. of Los Angeles.

Mobile Crane on Pipe

One of the things which surprised Perry Tomei and everybody else was the fact that the 22-B Transit Crane handled 78-inch pipe joints weighing approximately 9½ tons each, despite the fact that its outriggers dug heavily into the sand when the machine boomed over at a right angle to its longitudinal center line. Approximately 50% of the pipe sections were laid by each machine. The pipe was laid on a fine grade prepared by the one laborer who had attended the excavation dragline. Final touches were, of course, occasionally necessary where the ground was disturbed. These were made as pipe laying progressed by one of the members of the pipe-laying crew. A single wire rope sling of ¾-in. diameter was used in lowering each pipe section into the bottom of the trench.

When the storm drain had finally been installed, the line was as true as a rifle barrel from one end to the other. The end was visible for thousands of feet. Sufficient spaces were left between the large-diameter sections for a transition form and the entry of 24-in. laterals leading in from drain scuppers in the street above. These transitions and the laterals also were placed just as quickly behind the main pipe as possible to keep the line closed up during the peak of the winter rainy season. The sealing of joints with a mixture of cement and sand mortar also followed immediately so that backfilling could be done as quickly as possible. Backfilling was done rapidly, but to excellent standards. An International TD-24 tractor with a cable-controlled Bucyrus-Erie dozer was used to shove excavated material back over the pipe in the covering process.

Whenever possible, Contractor Tomei unloaded concrete pipe sections from United Concrete Pipe's haul truck directly to the ditch position. It saved secondary handling.

Secondary part of Tomei job was extension of two taxiways. A Caterpillar motor grader blades base rock to grade.

Specifications gave Tomei the option of flooding this backfill to a point one foot over the top of the pipe. At that time, the specifications then called for densities of 98% of the modified AASHO method, which meant that flooding would no longer do the job.

At that point, therefore, Tomei brought in a Southwest sheepsfoot roller and several Bros wobble-wheel rollers. These machines then were used as the dozer continued to shove in lifts of approximately eight inches. It was possible to get on the fresh backfill within approximately 24 to 36 hours from the time the flooding had been finished, because the sand drained so well. There was no clean-up work, as such, over the storm drain. The backfill was continued right on up to a finish subgrade line, and a graded aggregate base course was then hauled in and laid to form the sub-base for the new service road.

The contractor's 25-ton Bucyrus-Erie 22-B Transit Crane set approximately half of the pipe on the job. The mobile unit handled even the 78-in. diameter sections easily.

Over a period of a great many years, incidentally, the Los Angeles Department of Airports has developed an extremely efficient method of building sub-bases. The city had tried almost everything from time to time, including gravel, soil cement, and other types of bases. But the one base which has worked out best consists of a mixture of 40% of No. 3 crushed rock, 10% of No. 4 crushed rock, and 50% of rock dust. All of the material is produced in the Los Angeles area by commercial aggregate producers. Rock from the San Gabriel River basin is best because it is considerably more sound than that from San Fernando Valley. Gradation requirements of the material must meet the following tolerances:

Size Sieve	*% Passing*
1 inch	100
¾ inch	80 to 100
⅜ inch	60 to 70
No. 4	50 to 60
No. 50	10 to 20
No. 200	4 to 10

One of the desirable features of this sub-base rock is the fact that even when it's completely saturated it seems to lose none of its strength or bearing value. Several years ago, in one of the expansion-program contracts in the development of the east end of the field, Sepulveda Boulevard was carried under the airport runway in a reinforced-concrete tunnel. (See *Excavating Engineer* of September, 1951. "First Airport Vehicular Subway Now Building" by Gilbert C. Close. Page 26.) That tunnel acted as a dam, and began to trap underground water. When engineers dug into the base-course rock, which had been used in backfilling around the tunnel, they found a super-saturated water condition but no settlement what-

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News from the Field

Dig For Senate Bldg.

The first contract on the new $21 million Senate office building will be let this month in Washington, D. C. It will be for excavation and foundations.

Bids opened on the 6th of January revealed the John McShain Co. of Philadelphia as low bidder. McShain bid $747,200 for the excavation and foundation work. The 19 other bids for the job ran up to nearly $1.3 million.

The new structure on Capitol Hill will be 447 feet by 249½ feet, and will call for an excavation depth of 30-40 feet. No difficulties are anticipated below ground. Utilities have already been cut off and the soil is mostly sand and clay.

When completed, the new office building will be seven stories above ground and two below. It will house 329 office rooms, 15 committee rooms, an auditorium, a school for the Senate pages, cafeteria, gymnasium and other facilities.

McShain has distinguished himself as a builder of public structures in the nation's capital. He has bid on more than 200 projects and won twice as many jobs as his closest competitor. Among the monuments completed by his crews are the $76 million Pentagon, the Department of State, the National Airport, the Bureau of Engraving, the Government Accounting Office, the $40 million National Institute of Health and the White House renovation.

Eggers and Higgins of New York City are architects.

Rust Engineering Co., Pittsburgh, builds new Erie, Pa., sewage plant under high water table conditions. Two 90,000 gph Jaeger GM Diesel-powered pumps de-watered.

Construction Safety Rep

Wendell Blair has been named staff representative of the National Safety Council's Construction Section, coming to the Council from the Zurich-American Insurance Cos., where he was construction safety engineer.

Blair has been engaged in construction and safety work for 25 years. While employed by construction firms, he gradually moved into safety activities, first with Standard-White-Midwest Paving Contractors and later as safety engineer for the Aluminum Co. of America at the McCook, Ill., rolling mills and safety director, when Reynolds Aluminum Co. took over the mills.

Cement Plant for Detroit

Plans for the erection of a new cement manufacturing plant with an annual capacity of one million barrels to be located in the metropolitan Detroit area were announced by Walter C. Russell, president of the Peerless Cement Corp. This will increase present plant facilities approximately 25% when completed, enough cement for concrete to build 140 miles of new streets or highways each year.

Construction is scheduled to start in 1955 with the objective of having cement from the new plant available for distribution late in 1956 or early in 1957.

The decision to build the new plant was based on the belief, held by the company, that construction activity in Michigan, Ohio, and Indiana will be substantially greater in the next ten to fifteen years.

Plan Welding Talks

Papers on many current, practical problems of welding, as well as those on advanced research, will highlight the program of the National Spring Meeting of the American Welding Society, scheduled for the Hotel Muehlebach, Kansas City, Mo., June 7 to 10.

The Spring meeting is held in conjunction with the annual Welding Show, which will be presented at the Municipal Auditorium in the same city, June 8-10. The show, which will be the largest ever held in the welding field, will feature the greatest assemblage of welding equipment and accessories ever gathered.

1955 AGC Officers

George C. Koss, president of the Koss Construction Co., Des Moines, Ia., has

Continued on page 44

Same equipment—different jobs

Should you change wire rope constructions?

Under normal conditions there is one best size and type of Red-Strand rope for every wire rope using machine. This is the one you use day in and day out on your routine work.

But what about other conditions, the tough job, the unusual job? Suppose abrasion becomes a bigger factor, or unusual strength is needed, or more flexibility? Is a change of rope type in order?

Take a power shovel, for example. Moving dirt, sand, gravel, ore, it works fast handling smooth loads. If it is on a long job of clearing large rock, however, it will move slower and receive heavy jars and shocks. A different Red-Strand wire rope construction will probably absorb shocks better and last much longer than ordinary types.

Take *your* equipment for another example. Whatever your business and however you use wire rope—if unusual conditions arise call in your Leschen technical man. Leschen makes all types, knows the special advantages and qualities of every one, and can help you choose the rope that will do your job best—on shovels or any type of equipment. Leschen's Hercules Red-Strand wire rope is working profitably in every industry.

Your Leschen man can easily be reached through your nearby Leschen distributor. See him soon.

LESCHEN

HERCULES *Red-Strand*® **WIRE ROPE**

LESCHEN WIRE ROPE

Depend on Leschen's higher-than-rated quality for longer-than-expected service.

HKP

LESCHEN WIRE ROPE DIVISION
H. K. PORTER COMPANY, INC.
St. Louis 12, Missouri

"WE SAVED AT LEAST 20 PER CENT WITH OUR ERIE STRAYER BUCKET"

● STATES SUPERINTENDENT, MERL PRICE OF THE GENERAL CRUSHED STONE CO.

"Faster operation—quicker closings—full pay loads"—these features Mr. Price emphasized in telling how his company saves 20% in time and labor with an ERIE bucket.

Not only that! Mr. Price also figures about 30% savings in cable. Longer cable life—less down-time, important factors in the contracting business where profits are figured close, and down-time means dollars lost.

It didn't just happen—ERIE buckets are made to give just such savings. Check these features against any bucket on the market —then check prices.

1. **SPEED:** Faster operation from short, powerful closing and opening action.
2. **DURABILITY:** Rigid, one-piece head shrugs off bumps and jars.
3. **LOW HEAD ROOM:** Permits higher stock piling—less frequent repositioning.
4. **LOW MAINTENANCE:** Continuous cable reeving with no reverse-S bends. Less cable to buy.

ERIE BUCKETS

FOR CATALOGS, WRITE DEPT. E35
CABLE ADDRESS: EXIMPORT

ERIE STRAYER COMPANY
[illegible] GRIST ROAD • [illegible] PENNSYLVANIA

News . . .

Continued from page 42

been elected president of The Associated General Contractors of America for 1955.

Also, Frank J. Rooney, president of Frank J. Rooney, Inc., Miami, Fla., building contractor, has been elected vice president for the coming year.

Koss succeeds John MacLeod, president of Macco Corp., Paramount, Calif., and Rooney takes over the office Koss held in 1954. Both Koss and Rooney will serve a one-year term and will be installed at the close of the A.G.C.'s 36th annual convention March 14-17 in New Orleans.

Continental Buys Wooldridge

H. J. Gusman, president of Wooldridge Manufacturing Co., Sunnyvale, Calif., builders of heavy-duty earthmoving equipment, disclosed in January the sale of the entire stock of that company to Continental Copper & Steel Industries, Inc., New York.

According to Mathiew J. Hall, president of CCS, Henry Gusman, nationally known founder (in 1938) and former president of the western firm, has been named vice president of CCS and is in charge of the new Wooldridge Division as well as serving as a member of the Continental management committee.

Wooldridge is a producer of self propelled and tractor drawn scrapers and other heavy earthmoving equipment. Eastern manufacturing facilities of Continental, through divisions already performing similar types of fabrication, assembly, and component manufacture, will be available to Wooldridge.

Take Mines Census

Signing of an agreement under which the Bureau of Mines, Department of the Interior, and the Bureau of the Census, Department of Commerce, will cooperate in gathering statistics of mineral production and other operations of some 40,000 establishments in the nation's mineral industries is announced.

Early in January establishments in the minerals producing industries will receive joint forms on which to enter the information requested for both annual canvasses of the Bureau of Mines and the quinquennial census of mineral industries of the Bureau of the Census.

To assure complete coverage, and to avoid duplication, the mailing lists of the Bureau of Mines and the Census Bureau will be combined.

KEEP THEM ROLLING

...IN MUD SNOW OR SAND

WITH *all-weather* TRUCK TRACKS

VERSATILE

Super traction for single as well as tandem axle trucks. SIZES AVAILABLE FOR ALL HEAVY-DUTY SINGLE AND DUAL TIRES.

The unusually low price of TRUCK TRACKS *puts them within the reach of every truck owner... If you're bogged down, contact your local dealer or call, wire or write us!*

Beat the *Mud* and *Snow* and *Sand*... mount TRUCK TRACKS on your rolling equipment. TRUCK TRACKS can eliminate seasonal shutdowns on the job by adding *tractor performance* to your trucks. Ideal for desert operations the year 'round.

Drivers mount TRUCK TRACKS in 10 minutes time; remove them in less. Adjustments are simple and easy to make. Nothing to break, bend or loosen...maintenance is negligible.

PROMPT SHIPMENT. Order your TRUCK TRACKS from your equipment dealer, or fill in the coupon and rush it to us. Shipment can be made the same day your order is received.

P&G SUPPLY CO., 2262 N. Albina, Portland 12, Oregon **Dept. 5-C**

Gentlemen: Please rush complete TRUCK TRACK details and prices for:

SINGLE AXLE: ☐ Single Tire ____ x ____ (Size) ☐ Dual Tire ____ x ____ (Size)

TANDEM AXLE: ☐ Single Tire ____ x ____ (inches) Center-to-Center Axle Spacing

☐ Dual Tires ____ x ____ (inches) Center-to-Center Axle Spacing

Name _____

Address _____

City _____ Zone ____ State _____

My Local Equipment Dealer is: _____

TRUCK TRACKS NOW USED ON...

Quick-Way Shovels and Cranes • Gradalls • P & H Cranes • Lorain Moto-Cranes • Schield-Bantam Shovels and Cranes • Northwest Cranes • Hyster Fork Lifts • Unit Crane • Mandt Swing Loader • Wayne Cranes • Byers Shovels and Cranes • Little Giant Shovels and Cranes • Drilling Rigs, Tractors, and Many Other Truck-Mounted Shovels and Cranes

P&G SUPPLY CO.
2262 North Albina
PORTLAND 12, OREGON

Pipeline . . .

Continued from page 41

ever on the pavement above. It was a fine tribute to the efficiency of the crushed material which they had been using. The use of that material naturally has continued to this day.

Taxiway "K" and Taxiway "U" are the two strips being lengthened from the east end of the field, so that planes may soon get into the new hangar area. Each of these extensions is approximately 1,500 feet long, with an asphalt pavement 75 feet wide, placed over the same graded aggregate base course material previously described. Enough of this material is used to develop the proper bearing value for any of the several general types of soils on Los Angeles International Airport.

The grading job was negligible because the site had been fairly well established to grades when the 12 million yard job was done several years ago. What yardage there was flattened off quickly as Tomei's forces, under Superintendent Ed Tomei, moved in with a fleet of five Caterpillar DW21's. These machines were push loaded by a pair of Caterpillar D8 Hi-Output machines, and the material was laid in thin lifts by an Austin-Western motor grader. Wobble-wheel roller compaction and sheepsfoot rollers developed the proper densities before the sub-base rock was hauled in and laid. Following the installation of this sub-base rock, the surface was primed with MC-1 asphalt and the taxiways then were ready for paving. The only subcontract in the Tomei job concerns itself with asphalt paving, and is with Southwest Paving Co. of Los Angeles. That firm, which specializes in asphalt pavements, will do all the plant-mix work in connection with Tomei's contract.

Of the contracting outfits in southern California, J. Tomei & Sons Construction Co. ranks as a "native-son" outfit, and shows every indication of being in southern California to stay. Established back in 1905 by Contractor Julio Tomei, when he was a contractor for the Milwaukee-St. Paul Railroad in Idaho and Montana, the firm has grown slowly but steadily. Julio Tomei came to southern California in 1923, and the firm has been active there ever since.

The Tomei organization is one of those closed family arrangements where everybody works together beautifully under the general supervision of the senior member. Julio Tomei has never lost his close sense of touch with his jobs, and hardly a detail, even today, escapes his attention. Tomei is a great believer in good equipment and his company has traditionally been well staffed with whatever machinery has been required to do the work in contracts the company has held.

The company has done many important and sizable jobs, including some runway extensions and taxiways at the east end of Los Angeles International Airport, where the firm now is working. One of its big jobs last year was the excavation of 1.7 million yards on U. S. 99 and U. S. 6, near Weldon Canyon north of Newhall. The firm has also done excavation jobs on Hollywood Freeway, has built a 2,500 unit addition to Lakewood Park Village, did an eight-mile storm drain for the Corps of Engineers near San Bernardino, Calif., and has done many moderate size highway jobs.

Julio Tomei runs the show, assisted in a general supervisory capacity by his sons, Perry and Ed. Vic Tomei heads up the equipment section, particularly with regard to maintenance.

The application of good equipment and good organization by the Tomei Co. to Los Angeles International Airport, however, is expected to rush a sizable and difficult storm drain and taxiway program to completion in only four months during the unfavorable winter rainy season. That has been a good accomplishment in anybody's language.

Heading up the supervisory personnel for the Los Angeles Department of Airports were M. Tommy Tucker, airport engineer, assisted by Otis T. Calhoun, assistant airport engineer. Field inspection was under the general supervision of Vern Ostendorf, chief inspector, who was assisted by Al Sutcliffe and Art Bedsaul.

THE NATL. SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC. 11 S. LASALLE STREET, CHICAGO 3, ILL.

Japan . . .

Continued from page 25

Sakuma reservoir will reach the tailrace of Hiraoka power plant and will cover a wide area in three prefectures, Shizuoka, Aichi, and Nagano. Six miles of the National Railways' Iida line will have to be relocated, in addition to five miles of the highway.

On the job at the Sakuma project are numerous Bucyrus-Erie 54-B's, 51-B's and 22-B's, in addition to a fleet of more than 50 Euclids and Caterpillar D-8's. All are operated by Japanese, who American engineers say show great proficiency as operators.

American engineers on the dam sites in Japan pay tribute to one piece of equipment which is found universally in Japan and never in the United States. It is a motorcycle-engine equipped three-wheeled pickup truck with an enclosed driver compartment. Light in weight, economical in fuel and durable, this "fly-weight" has found a welcome niche in dam operations and in cities. It packs the load of the American pickup, and is much more maneuverable, say American engineers.

The Japanese know and respect American production methods. Their younger men, trained in American universities and under American methods, are persuading the older generation that American "know how" pays dividends. This is proven by the extent to which American technological skill and equipment is being used in pushing to completion Japan's greatest hope for regaining her place in world economy, the massive power developement program.

When one sees the industry of such a friendly people as the Japanese being applied so aptly to such a great project —or when he passes the great stacks of the steel foundries between Tokyo and Yokohama—he fervently hopes that this great and compact nation will remain a democratic bulwark between the United States and Communist Russia.

McHugh . . .

Continued from page 31

Andrae Electrical Co., lighting; Reinke & Schomann, Inc., ventilation; Sprinkman Sons Corp., insulation; S. Heller Elevator Co., automatic elevators.

Milwaukee County is represented by John W. Rankin, director of county institutions.

LICKS 5 MILES OF TROUBLE

Chunks of rock had to be blasted loose. The high arch of the 22-B dipper enabled it to load and dump this rock without jamming or slowing the cycle.

ON DELAWARE SEWER TRENCHING JOB

When the James Julian Construction Company contracted to dig five miles of sewer trench along state highway 141 near Wilmington, Delaware, Superintendent J. H. Hubbard figured he had trouble on his hands — and he did. The material turned out to be 40 per cent solid rock and 60 per cent hardpan clay. It had to be trenched 9 ft. deep for 30-in. mains and 12-in. secondary lines.

Superintendent Hubbard summed up his experience with the 22-B's by remarking, "I didn't quite appreciate how tough these 22-B machines were until we started this job. In digging like this you soon learn to respect a machine for its ability."

There's a reason why there are more Bucyrus-Eries working in rock than any other machines. They have the extra stamina for rough going, as well as the extra production ability for any job. Let your Bucyrus-Erie distributor show you why.

95E55C

BUCYRUS ERIE

South Milwaukee, Wisconsin

Front-to-rear taper of dipper speeds dumping, means extra clearance in wide trench work.

The box section boom and dipper handle eliminate dead weight, yet are plenty strong for tough digging. The entire front end can be positioned below cab height for safe, easy clearance in traveling.

FIVE machines in a SINGLE package

The well-known versatility and usefulness of "PAY-LOADER" tractor-shovels are greatly increased by a complete line of attachments provided for them. Many of these attachments are designed specifically for and available *only* on the "PAYLOADER" line — enabling your "PAYLOADER" to handle a greater range of jobs than any other tractor-shovel.

So when you want a package of complete tractor-shovel usefulness — a single machine that can do more jobs on more projects — your best bet is a proven "PAYLOADER". There's a model and size to fit your needs.

BACK HOE
Dig trenches, tank pits, bell-holes, foundations.

CRANE HOOK
Lift, load, carry and place steel, pipe, timbers, forms.

LIFT FORK
Handle all kinds of unit loads on or off pavement.

BACK-FILL BLADE
Back-fill trenches, walls, abutments — level and spread.

OTHER USEFUL ATTACHMENTS
Scarifier teeth; special buckets; winch; pusher plate; cab; pick-up street sweeper; snow plows — rotary, "V", and blade.

THE FRANK G. HOUGH CO.
708 Sunnyside Ave. Libertyville, Ill.

☐ Send information on complete PAYLOADER line
☐ Send complete data on PAYLOADER attachments

NAME_____
TITLE_____
COMPANY_____
STREET, ETC._____
CITY_____ STATE_____

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. · LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

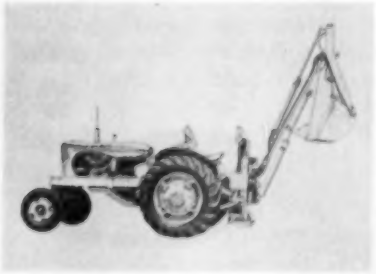
Equipment You Ought to Know About

Wheel Tractor

Manuufacturer: Allis-Chalmers Mfg. Co., Tractor Division, Milwaukee 1, Wis.

Claims: The manufacturer has expanded its line of industrial excavating and materials handling equipment by adding the Model WD-45 wheel tractor equipped with the Henry backhoe. Other Henry hydraulically operated attachments including backfiller blade, straight and angle dozers and front-end loader, are also available for the WD-45.

Weighing about 4,000 lbs., the WD-45 is powered by the Allis-Chalmers "Power-Crater" gasoline engine, a valve-in-head design unit developing 45 hp from a 226 cubic inch piston displacement, and a 6.5 to 1 compression ratio. Extra power and low fuel consumption per horsepower available is obtained from "regular" rather than "premium" fuels.



Making up the basic unit is the WD-45 tractor and the Henry backhoe. Attachments available to contractors, utilities, municipalities, industrial plants, and other users of the WD-45 include five buckets 16 to 24-in. wide, interchangeable with the backhoe for use in stockpiling, truck loading, and other dirt moving jobs. Maximum loading height with the rear-mounted unit is nine feet.

Truck Engine

Manufacturer: International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Claims: The new 140-hp International Black Diamond 264, a high torque, valve-in-head gasoline engine has been introduced as optional equipment for the five International R-160 series truck models. The engine is designed to power trucks in the 14,000 to 17,000 lbs. GVW range and highway tractors rated at 29,000 lbs. GCW.

This addition to the complete line of International-built motor truck powerplants displaces 264.33 cubic inches, develops 140-hp at 3,800 rpm and delivers 234 ft.-lbs. maximum torque at 2,000 rpm. Ratio of brake horsepower-to-cubic inch displacement is a notable 53. Important factors in achieving fuel savings in Harvester's newest engine are a newly-designed dual-barrel downdraft carburetor and latest-type manifolding.

The BD-264 has 3 1/8-in. bore and 4 1/8-in. stroke.

Also contributing to the many performance characteristics of the BD-264

Continued on page 50

"We Didn't Build a Bridge, We Moved a River"...

A. S. Wikstrom, Inc.

One Sauerman Scraper helped by spreading 200 cu. yds. of muck per hour

Spreading 260,000 cu. yds. of plastic material as excavation progressed in the rechanneling of the winding Clyde River was one of the jobs done by A. S. Wikstrom, Inc. in the Thruway construction near Seneca Falls, N.Y.

A 6 cu. yd. Sauerman Crescent Scraper, equipped with carrier and track cable, working from a 1 1/2-cu. yd. crane handled the job at the rate of 200 cu. yds. per hr. Length of haul was about 300 ft. An Athey Wagon served as an anchor for the track cable and provided the necessary mobility. A spud was used to support the boom and also allowed the operator to take advantage of almost the full boom height for fast gravity return of the scraper to digging point.

This set-up supplanted an earlier recasting arrangement using several machines. It operated at a considerable savings over previous cost.

For more details on the Clyde River project ask for Sauerman News No. 139. Request Field Report 219 and Catalog J. for specific information on the use of scrapers with boom machines. Sauerman engineers will tell you the largest Crescent scraper your dragline can handle, if you will give us the make, model and boom length of your machine. For information on the use of scrapers with tractors, request Field Report 209 and Bulletin No. 160.

SAUERMAN BROS. INC.

622 S. 28th Ave. | Bellwood, Ill.

New Equipment . . .

Continued from page 49

is a solenoid-operated, overrunning-clutch-type positive engagement starter to facilitate starting in extremely cold weather. The engine also features a new 11-in. clutch. It provides more than 14% increase in facing area and incorporates such improvements as a fully-ventilated cover and roller-mounted fingers that minimize friction and reduce pedal pressure by 25%.

Other important elements leading to the efficiency and economy of the new engine include controlled-expansion, three-ring aluminum pistons, and positive full-pressure lubrication. A new high-lift 50° ramp camshaft assures quieter valve operation and eliminates breakage. The counterbalanced, 6-main-bearing crankshaft of the BD-264 is reinforced alloy steel with fillets at bearing journals, providing strength required by engine's high torque. Exhaust valves are stellite-faced slo-roto type with silchrome seats. Engine breathing efficiency is enhanced by a new intake manifold.

AC or DC Welder

Manufacturer: The Lincoln Electric Co., Cleveland 17, O.

Claims: A new universal, combination arc welder provides a choice of either AC or DC welding current. The new machine, called the Idealarc, is said to provide an ideal type of welding arc for every type of manual welding application, permitting selection of either AC or DC and either a soft or forceful arc.

For any welding job there is one type of arc which is best suited for that job. The job may best be done by either AC or DC and with either a soft type of arc or a digging forceful arc. The job can be done with any one of the several combinations, but there is, nevertheless, one combination which will give maximum performance.

The Idealarc is said to present a unique opportunity for welders to select the proper welding arc for their application. The machine is available in several combinations. It can be obtained as an AC welder without the DC current. To this unit a DC package can be easily attached in about one hour whenever desired. It is also available as a combination AC and DC machine with selection of either current made through a simple twist of a switch handle. Different output capacities of DC and AC can be combined to fit the machine to the job requirements. The machine thus can be quickly set for maximum efficiency on every type of welding—ferrous or non-ferrous materials, sheet metal or

heavy plate, all positions, and under arc blow conditions or poor fit up.

For AC welding jobs the machine provides a single phase transformer type welder, the circuit of which has been designed to give greater arc stability than is normally associated with welding transformers. The machine is said to produce an exceptionally smooth spray type of transfer of metal.

Both voltage and amperage are controlled to give the desired control of arc characteristics. Dual-control has long been a feature of Lincoln's SAE type DC welders but never before has been available on any AC transformers. The Idealarc provides continuous current control through a rotating core in a separate control circuit and also has a switch to permit control of the open circuit voltage. Through this voltage control, the arc can be made to be either a soft arc, steady, low in spatter with a spray type of metal transfer, or it can be made a forceful digging arc with maximum penetration for crowding the arc without a tendency for electrode sticking.

In addition to dual-control of the arc, the Idealarc machine also has an arc booster switch for selecting normal or "hot" starting. The machine's inherent stability provides unusually good AC current starting characteristics, but the switch permits controlling this to give efficient performance on different types of materials, in varying thicknesses and under different joint conditions.

The new machine, it is claimed, will permit using, to their maximum advantage in speed and quality, the new iron powder type electrodes which are designed for best performance with AC current.

For DC welding, the Idealarc pro-

Continued on page 54

"Only tractor that will stand up under abrasive action..."

Says Silica Mine Owner E. J. AuBuchon about 19 mph Tournatractor

AuBuchon Silica Mining Co., Crystal City, Missouri, produces silica sand for glass and steel manufacturing. They are currently working a 40-ft. strata of St. Peter's sandstone, which is blasted and then truck-hauled to the crushing and screening plant.

Formerly, this company used crawler-tractors to strip sandy clay and rock overburden from the pit. However, the rough rock floor, plus the continuous grinding of tracks in silica sand, ruined the crawlers quickly — the last one, according to the owner, was "beyond repair" inside of 11 months. To keep this from happening again, AuBuchon brought in a rubber-tired Tournatractor.

Now, after several seasons of work with rubber-tired tractors, 4 points are apparent:

1 — Tournatractor's big low-pressure tires roll easily over the rocks which frequently broke track pads.

2 — Tournatractor's sealed anti-frictions keep moving parts out of the abrasive sand which ground away tracks.

3 — Tournatractor's 208 hp, coupled with 19 mph forward and 8 mph reverse speeds, enable it to do most jobs much faster than a crawler.

4 — With normal care and maintenance, Tournatractor should last for years instead of just 11 months.

Commenting further on the superiority of tires over tracks, Company Vice-President E. J. AuBuchon says, "Our Tournatractor is doing a fine job. We have found it is the only tractor that will stand up under the rocky hard floor of our operation. Crawlers just can't take the abrasive action of sandstone."

All-Purpose Tool

There have been production advantages, too. Tournatractor clears trees and dozes overburden and rock up and down wet 8 to 10% grades with little trouble. Its 2½-yd. blade dozes full loads of overburden weighing 2700 lbs. per cu. yd. With its "go-anywhere" 19 mph mobility, it also has time to handle a wide variety of jobs . . . including cleaning the quarry floor around shovel, piling chunk rock for shovel loading, building and maintaining roads, and stripping overburden beyond the pit limits. And that's not all . . .

On 200′ push, 70 yds. hourly

Tournatractor's operator H. W. Plass says, "I've stripped better than 7,000 yds. of dirt in 100 hours (200′ push), and I could still find time to clean up around the shovel and do other extra jobs. The torque converter and down-pressure dozer blade makes Tournatractor a fine tool for this type of work. It is a fine machine for the operator."

Tournatractor's fast working speeds on rubber can pay off in increased production and lower maintenance costs for you, too. Ask your LeTourneau-Westinghouse Distributor for a demonstration of Tournatractor on your job, so you can judge its advantages for yourself.

Tournatractor—Trademark T-411-M-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Now ...4 tons more capacity at no extra cost

Check these improvements:

4 tons more capacity

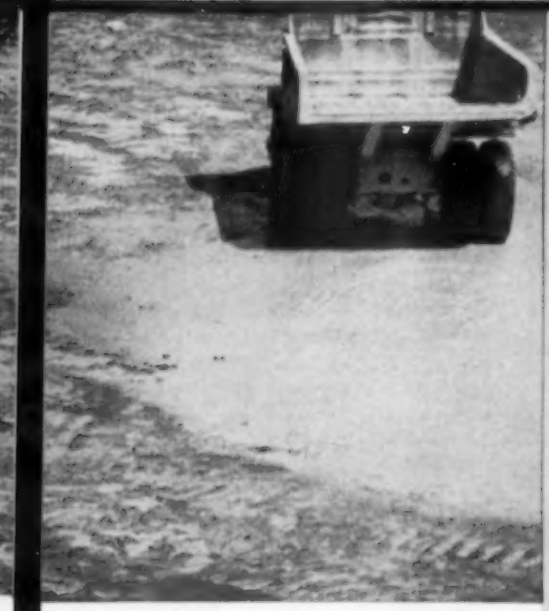
Payload of the C Tournapull Rear-Dump has been raised from 18 to 22 tons! Increase was made possible by redesigning the Rear-Dump body to make it lower and wider. Because of this greater width, the "C" loads faster and easier than ever before. At the same time, we have reinforced the bowl to further increase our safety margins. These improvements, plus all the others described here, are available on the new "C" at no extra cost to you.

Better gradability, stability

New body design shifts weight forward . . . improves gradability over the previous C Rear-Dump. With this improvement, "C's" grade-climbing ability now compares favorably with any make hauler on any practical haul road. Wheelbase has been increased 6 in., gauge widened to 9 ft., and ground clearance lowered to 22 in. to give you even greater stability . . . improved performance on grades. Overall length in haul position, however, is only 30 ft.

13 to 20% less deadweight

Comparable rear-dumps carry from 2½ to 4 tons of excess iron on their backs. For these extra tons of iron you pay from $850 to $5600 more than for a "C". You haul this extra dead-weight both ways on every trip your hauler makes, but add nothing to your earnings. For the life of the machine it costs you bigger fuel bills, higher tire costs due to over-loading, plus greater repair expense because of extra weight and shock on running gear.



"C" Rear-Dump now 22 tons

In addition to many improvements in structure and machinery throughout, you get all these job-proved basic features which made the previous C Rear-Dump a successful production unit:

Hauls anywhere — With big rubber tires, Rear-Dump safely travels narrow haul roads, paved highways, city streets . . . hauls cross-country over roughest terrain, through mud, and soft fills.

Reduces maintenance — Because Rear-Dump has no hydraulics, no jack lines, no long drive-shaft, no frame, sub-frame, springs or tie rods, most common troubles of conventional rear-dump haulers are eliminated.

Dumps fast, clean — A touch of a switch activates hoist motor. Body lifts quickly, swings behind rear wheels to dump clean over bank. Streamlined bowl sheds material readily.

Cuts weather delays — Power transfer differential automatically applies power to drive wheel on firmest footing . . . pulls unit through mud, sand, and soft materials which stop ordinary haulers. It's a Tournapull exclusive.

Works fast in tight quarters — 90° turns within a radius of half of unit's length, plus power steer, quickly position "big-target" body under dipper. No switching back and forth, no turntables.

Eliminates manual work — Finger-tip electric controls on instrument panel activate electric motors at point of action. Heavy manual work fighting steering and control levers is eliminated.

Resists body shock, damage — Three-layer, all-steel, grid-type bowl with tool-steel floor resists loading shocks. Big, wide bowl opening is an easy target for any loading unit.

Improves safety — Multi-disc air brakes have more breaking surface on one wheel than most haulers have on 4. Low center of gravity, good visibility, front-wheel drive, easy control also boost safety.

Delivers full power — Torque converter (optional) automatically balances load and torque so you get full hp always. Lugging is reduced; shocks between engine and transmission virtually eliminated.

Reduces fatigue — Big low-pressure tires and air-foam rubber cushion seat smooth out ride for operator. Push-buttons control every action. Fatigue factors are greatly reduced.

Insures future earnings—Behind Tournapull prime-mover, you can interchange scraper, bottom-dump, other trailing units. With them, you always keep these units profitably busy on any type of future operation.

Check for yourself. Your LeTourneau-Westinghouse Distributor will supply you with names of Tournapull Rear-Dump owners in your area. Visit the jobs . . . talk to the operators . . . learn for yourself that improved C Tournapull Rear-Dump is the answer to your hauling problem.

There is a size to fit your needs. Besides the 22-ton "C", LeTourneau-Westinghouse offers similar 9, 35, and 50-ton models.

Tournapull—Trademark Reg. U.S. Pat. Off. R-765-G

12% greater horsepower

To power your improved "C" Rear-Dump, you now have a 6-cylinder GM 6-71 diesel with brake horsepower rating of 208 hp at 2000 rpm. With this improved engine, you get quick pickup in starting and gear changes . . . better response at high speeds . . . better grade-climbing ability . . . all adding up to overall faster cycles. 200 hp Buda or Cummins diesels are also available. And, you have choice of sliding-gear or constant-mesh transmissions.

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

New Equipment . . .

Continued from page 50

vides DC welding current through heavy duty rectifiers. Dual-control of the arc is provided and, in addition, ability to select either normal or "hot" starting with the Arc Booster. The controls provided, combined with a design and construction that produce an easy steady arc, create a DC machine with the quiet, efficient operation of rectifier welders with the versatility and operating ease of motor generator welders.

Current models available are 300, 400 and 500 ampere AC combined with DC capacities in 200, 300, 375, and 450 amperes.

335-hp Tractor

Manufacturer: M-R-S Manufacturing Co., Jackson, Miss.

Claims: Engineered to power scrapers up to 30 cubic yards struck capacity pusher loaded and 18 yard struck scrapers self loaded, the new 19.5 ton 335 hp Model 200 tractor has 10 speeds forward up to 35.16 mph. Special 4 wheel design, easy power steering, and convenient controls enable the operator to

exact maximum performance from the tractor.

Equipped with the exclusive M-R-S hydraulic weight transfer device, the new M-R-S 200 is capable of producing as high as 46,956 lbs. drawbar effort. This great tractive ability means far greater assistance to the push tractor in securing heaping payloads in larger scrapers in less time and distance.

The M-R-S 200 has the same high degree of versatility available in all M-R-S tractors. Since it is not permanently attached to the scraper, it can quickly be unhooked and its power put to work powering large compaction rollers, construction rippers, machinery trailers, and pushing scrapers.

Longer D8 Frame

Manufacturer: Caterpillar Tractor Co., Peoria, Ill.

Claims: A new seven-roller, oscillating-type track roller frame is now available as an attachment for the Caterpillar D8 tractor. Installation of this track roller frame on the D8 will provide increased traction, greater flotation and better stability, particularly when the unit is operating in hilly terrain and locations where underfoot conditions are soft or unstable.

A tractor equipped with the seven-roller frame requires a 42-section track in place of the 39-section track included on the standard six-roller machine.

New arrangements for bulldozers, both cable and hydraulic, and for the Cat No. 46 hydraulic control are also required for use with tractors equipped with the longer frame. Heavy-duty track roller guards are available as attachments for use with tractors equipped with the longer frame.

Multi Purpose Machine

Manufacturer: Ottawa Steel Inc., Ottawa, Kan.

Claims: A versatile, new, self-propelled multi-purpose machine—the Hydra-Way — is a combination of the Ottawa Hydra-Hammer tower and operating mechanism, the heavy-duty, 11-ft. deep digging backhoe, and a powerful angle bulldozer or hydraulic front end loader.

The Hydra-Way accomplishes many operations such as: breaks concrete, cuts asphalt, digs holes and trenches, loads trucks without spill, removes snow, bulldozes and angle-dozes, backfills and compacts backfill, digs and carries one yard of earth then turns around and compacts it on the spot.

It is one-hydraulic-system operated. One-man operated . . . two levers accomplish all digging operations. Road speeds are up to 25 mph.

The machine weighs 14,000 to 16,000 lbs. Rear-mounted Hydra-Hammer tower compacts filled material in an area 135 feet square from one standing position. Breaks 135 square yards concrete without moving entire machine. Compacts vertical sided ditch or holes up to 18 feet deep.

Backhoe digs in rocky or heavy soils and is available equipped with various sizes patented "Ejector" buckets to dump each load with force. Every journal (pivot-pin) is locked into position, each acting as a bearing.

Angle bulldozer, with extra heavy duty thrust arms, angles 30° to right or left. Blade movement is 30 inches above ground to 14 inches below. Seven foot blade with optional wing blade ex-

"Just as I suspected! He sneaked over to the tavern again."

tensions give eight or nine foot width.

Extension boom and crane or level loading platform also available. Any tool used on Ottawa Hydra-Hammer works efficiently on the Ottawa Hydra-Way, according to the manufacturer. Maximum height is working position 13 feet, 9 inches. Folds down to 11 feet for traveling.

Rear end attachments available. Tower compactor or breaker or asphalt cutter; 11-ft. deep-digger backhoe with 8-in. to 36-in. width buckets, 42-in. backfill blade.

Front end attachments available. Straight or angle bulldozer; counter-

weight; loader with bucket, crane hook, extension boom, backfill blade, platform.

New Trade Literature

Subject: **Traxcavator Cabs**

Content: Cabs for Caterpillar HT4 Traxcavators are pictured and described in a catalog sheet recently issued by Crenlo, Inc., automotive and industrial parts manufacturers in Rochester, Minn. The cab's construction, dimensions, installation and optional accessories are listed. The unit fits all Traxcavator-equipped D4 tractors beginning with serial number 7U11952 that are not equipped with fender fuel tanks.

Where to get: Department KP, Crenlo, Inc., Rochester, Minn.

Subject: **P&H Products**

Content: A new picture bulletin just released by Harnischfeger Corp., Milwaukee, carries a listing of products bearing the "P&H" name. The booklet is streamlined with essential facts and capacities on P&H overhead cranes, electric and chain hoists, arc welders, welding electrodes, welding positioners, truck cranes, power shovels, electric shovels, soil stabilizers, Diesel engines and also details on P&H prefabricated homes. The bulletin includes a map showing locations of P&H plants, branches, warehouses and parts depots, sales offices and dealers. For a copy of this review of P&H products, write for Bulletin G-15, "A Great Hand to Help You Cut Costs."

Where to get: Harnischfeger Corp., 4616 W. National Ave., Milwaukee 46, Wis.

Subject: **IH Power Units**

Content: Eighteen heavy-duty power units are described in a new catalog just published by the International Harvester Co. The engines have a range of from 16.5 to 200 net horsepower. They fall into three groups: four-cylinder carbureted units, six-cylinder carbureted units, and Diesel units, both four and six cylinder. The catalog lists six heavy-duty Diesel power units, from 55 to 190 horsepower. These engines

Continued on page 58

"GET RID OF THE WATER!"

GET BARNES

Unwanted water, heavy rains, seepage, thaws all spell costly delays, upset schedules, loss.

Barnes Pumps "Get rid of the water"—save you time and money three ways.

◀1▶ "33,000 for 1" ECONOMY — 33,000 gallons of water pumped with 1 gallon of gasoline.

◀2▶ BARNES EXCLUSIVE SELF-PRIMING PRINCIPLE — Quick, dependable priming with as little as 1/3 normal water level in Pump body.

◀3▶ SIMPLIFIED FIELD SERVICING — Barnes simplified impeller adjustment, direct flow suction, automatic suction valve, more rugged construction keep down time and maintenance expense to an absolute minimum.

BARNES BUILDS A PUMP FOR EVERY PUMPING NEED

See your BARNES dealer or write for Catalog EE-3

BARNES MANUFACTURING CO.

Mansfield, Ohio • Oakland 21, Calif.

Buy the Best... Buy Barnes

Barnes MANUFACTURING CO. MANSFIELD, OHIO

CATERPILLAR ANNOUNCES THE

NEW D7

SERIES C

MORE POWER, SMOOTHER PERFORMANCE

NOW 102 DRAWBAR HP!
NOW A VIBRATION BALANCER ON THE ENGINE!

Here's the new CAT® Diesel D7 Tractor . . . latest example of Caterpillar Leadership in Action!

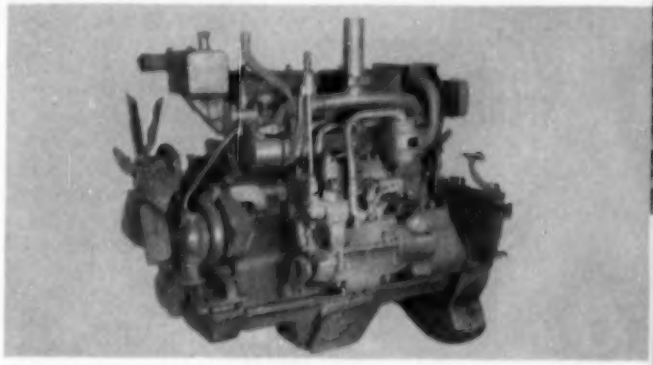
DRAWBAR HP INCREASED to 102, engine HP to 128 (at 1200 r.p.m.).

VIBRATION BALANCER on the powerful 4-cylinder engine now gives you all the smoothness of 6-cylinder performance.

DRAWBAR PULL now 28,700 pounds maximum.

NEW STARTING ENGINE has more power for surer, faster starts in all weather, and simple single-lever control for easier operation.

NEW "WATER QUENCH" PROCESS for hardening track shoes almost doubles shoe life.



New 128-HP Engine features improved fuel injection system, flanged center main bearing to take crankshaft thrust, many other advances.

The new D7 Series C is ready now to give you more profitable production than ever before. Call your Caterpillar Dealer today for a demonstration!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR TRACTOR CO., Peoria, Illinois
I would like additional information on the new D7 Series C

Name_____
Company_____
Street_____
City_____ Zone_____ State_____

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks — ®

THE NEW D7...MORE POWER, SMOOTHER PERFORMANCE

New Literature . . .

Continued from page 55

have an exclusive gasoline conversion system for all-weather starting, precision fuel injection system with reserve torque control for extra lugging ability, and four-cycle valve-in-head full Diesel engine. There is a choice of seven six-cylinder heavy-duty carbureted units, from the model U-220 with 62 horsepower up to the big model U-1091 with 200 horsepower. The engines have such features as valve-in-head design, electric starting as regular equipment, counterbalanced crankshaft and torsional vibration damper. The U-1091 is specially designed to run on natural gas; the six others are equipped for gasoline and natural gas. LPG fuel attachments are available. The five four-cylinder carbureted engines range from 16.5 to 55 horsepower. They may be equipped to burn natural gas as well as gasoline, and attachments are available on the four larger ones for operating on kerosene or distillate fuel. All five engines have such features as full-length water jackets, precision type replaceable bearings, flyball type variable speed mechanical governor and heavy industrial flywheel for smoother operation. Full specifications for application are in this new catalog.

Where to get: International Power Unit distributors or Consumer Relations Department, International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Subject: **GM 6-110 Diesel**

Content: A new brochure describing the operation of General Motors "6-110" Diesel engines and illustrating industrial and marine models in the series from 200 to 575 horsepower is ready. Entitled *Power for Progress*, the brochure covers features of design, specifications and power curves of single-, multiple-engine and torque converter units and includes photos of these engines at work in various types of equipment.

Where to get: Detroit Diesel Engine Division distributors.

Subject: **15-B Transit Crane**

Content: A new 12-page bulletin (15-B-TC-1) describing the Bucyrus-Erie 15-B Transit Crane (15-Ton rated capacity) is now available. Illustrated by job application photos and close-ups of mechanical features, the booklet includes a list of specifications and working ranges, plus brief, easy-to-read description of the machine's major advantages. The 15-B Transit Crane is a mobile, ½-yd. crane-excavator, easily convertible to shovel, dragline, clamshell, or dragshovel for handling a wide range of lifting and excavating jobs. The carrier is powered by a gasoline engine, and is equipped with 5-speed transmission mounted in unit with engine and 2-speed auxiliary unit mounted in truck frame—a combination that provides ten speeds forward and two reverse. Maximum travel speed is 33.6 mph. Upper works and machinery are basically the same as used on the company's crawler-mounted 15-B. Also described are such basic features as extra long folding boom; extendible outriggers; quick, easy swing; friction swing brake; open throat crane boom; and fast, accurate boom control with independent boom hoist with power-controlled lowering; also power-controlled lowering on the main hoist line.

Where to get: Bucyrus-Erie excavator distributors or Bucyrus-Erie Co., South Milwaukee, Wis.

Subject: **Safety**

Content: Three new safetygraphs on first aid are now available from the National Safety Council. *How to Control Bleeding* illustrates the latest techniques in the field, including new research by the Committee of Medicine of the National Research Council. *First Aid Treatment for Burns* discusses what to do for burns, frostbite, radiation and electric burns, as well as chemical burns of the skin and eye. *Transportation of Injured Persons* covers examinations of injured persons to determine spine or neck injuries, and use of common industrial equipment to transport injured persons. The safetygraphs provide a ready means of training small groups. Consisting of 12 spiral-bound pages, 18 x 24 inches, inserted in a brown leatherette portfolio, the safetygraph can be set on any flat surface and opened to form an easel. On the pages facing the audience are large, clear drawings. On the back pages in easy-to-read type are notes for instructors.

Where to get: Further information and prices may be obtained by writing the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Subjects: **Flood, DW20, Clay and Diesels**

Content: Four new bulletins published by the Caterpillar Tractor Co. cover the above subjects. The first is entitled *When Construction Men Agree*. It dramatically tells the story of restoration of local levees and the continuing construction of reservoirs at strategic locations on the tributaries of the Kansas River. It is a $15 million story which grew out of perhaps the nation's most disastrous flood in July, 1951. When the water struck the areas of Kansas City, Kansas, and Kansas City, Missouri, construction men from all over the country came to the rescue. This booklet reviews the part played by eight contractors. Ask for Form No. D489. The title of the second booklet, *The Cat DW20*, is the tip-off to its subject matter. Mine owners, contractors, and farmers throughout the world give testimony in their own words to the built-in quality and production of the rubber-tired DW20. Specifications and production figures are also contained in the bulletin. Ask for Form No. DE478. The third of the new Caterpillar booklets is entitled *Handling Clay The Profit Way*. It relates in the owner's and operator's own words how dependable, rugged equipment has saved time and money on all kinds of applications. The booklet covers operations with track-type tractors,

STANDS UP TO SEVERE USE

and even abuse

One word describes a Hayward — *ruggedness*. Yes, it's as tough, strong, sturdy as a bucket can be — and even more so. Extreme simplicity, little if any upkeep, high operating efficiency! Details on request. Write! THE HAYWARD COMPANY, 50 Church St., New York 7, N.Y.

HAYWARD BUCKETS

GLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES

famous for performance since 1888

shovels, wheel tractors, motor graders, and engines. Request Form No. D480. Finally, the company has published a new booklet under the title *Let Your Diesel Live.* It tells the story of the development of more efficient lubricating oils to get many years of reliable service from Diesel engines. The booklet tells how these oils affect the present owner or prospective purchaser of a Caterpillar engine. The sixteen-page bulletin may be obtained by asking for Form No. 12440.

Where to get: All the above bulletins may be picked up at Caterpillar distributors or they may be had by writing the company, Caterpillar Tractor Co., Peoria, Ill.

Notes from the Manufacturers

Bucyrus-Erie Co., South Milwaukee, Wis., reveals two new distributor appointments—one in Canada and one in this country. W. H. Marr Ltd. of Kenora, Ontario, Canada, has been appointed distributor for northwestern Ontario. The new distributor offers sales and service on the Bucyrus-Erie line of ⅛- to 4-yd. convertible excavators and cranes (gasoline, Diesel, or single-motor electric powered), including the Canadian-built ¼-yd. Model 22-B; 2½- to 8-yd. Ward Leonard electric shovels; walking draglines with Diesel or electric power, and 160-ton and 250-ton railroad cranes. The line also includes the 15-ton and 25-ton Transit Crane, the truck-mounted, all-hydraulic Hydrocrane and Hydrohoe, and Red Arch dragline buckets. The firm will serve that portion of the Province of Ontario bounded on the east by the north-south line at 91°–30′ extending south to the main line of the CPR, northwesterly along the CPR main line to the 92nd Meridian, then south again to the U. S. Border. To carry out the Marr slogan, "We Service Everything We Sell," complete servicing facilities will be maintained at the distributor's plant at 400-418 Railway Street, Kenora, Ontario, and at branches in Atikokan and Dryden, Ontario. In the U. S. the manufacturer reveals that Euclid-Tennessee, Inc., Nashville, Tenn., now offers sales and service on Bucyrus-Erie excavators and cranes in central Tennessee. The firm will handle the full line of ⅛- to 4-yd. convertible excavators and cranes, equipped with gasoline, Diesel, or single-motor electric power units; 15-ton and 25-ton capacity Transit Cranes; the truck-mounted all-hydraulic Hydrocrane and Hydrohoe; and Red Arch dragline buckets. The territory consists of that part of Tennessee bounded on the west by the Tennessee River and on the east by and including the counties of Pickett, Overton, Putnam, White, Van Buren, Grundy and Franklin. The new distributor maintains headquarters at 720 Murfreesboro Road, P.O. Box 1176, Nashville, Tenn.

Federal Motor Truck Co. reveals the appointment of Harry L. Norton as sales manager. In this capacity he

Continued on page 62

WORLD'S FASTEST METHOD

DIGGING CAISSON PIER HOLES
PREPARING BELLED FOOTINGS
PRE-BORING CONCRETE PILES
DRILLING WATER WELLS
DIGGING CESSPOOLS
EXPLORING MINERAL DEPOSITS
TESTING SOIL CONDITIONS

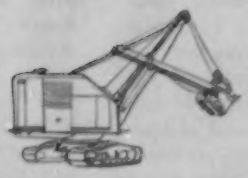
DRILLS 84″ DIAM. HOLES 200′ DEEP

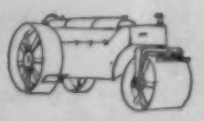
A TWO MAN CREW, using the Calweld Model 150-A Earth Drill can complete as much as 250 feet of 36- to 48-inch diameter hole in an 8-hour shift. Equipped with specially designed interchangeable buckets, earth drilling operations can be stepped up through every type of subsurface formation. Calweld Model 150-A drills holes as deep as 200 feet and in any diameter ranging from 16 to 84 inches. Entire unit is built on skid frames to allow convenient mounting on any two-ton or larger truck. Rig can be easily moved and set up to quickly complete multiple bores with a minimum of lost drilling time. You get more hole faster with Calweld Earth Drills. Get all the facts; write today for complete information.

CALIFORNIA WELDING & BLACKSMITH SHOP, INC.
7222 EAST SLAUSON AVE., LOS ANGELES 22, CALIF.

CALWELD BUCKET TYPE **EARTH DRILLS**

Caterpillar announces
A NEW LINE OF
TORQUE CONVERTER POWER UNITS





WIDE CHOICE OF POWER UNITS

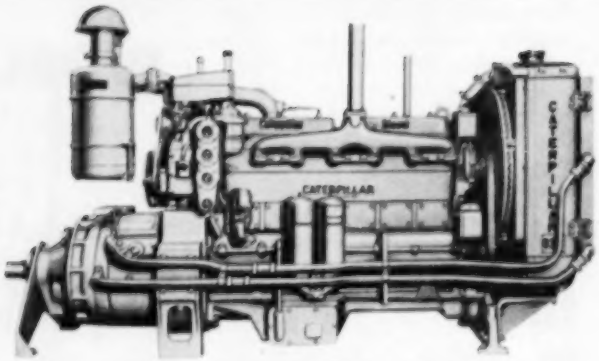
Engine and torque converter
Engine, clutch and torque converter
Engine, clutch, torque converter and reverse gear

WIDE CHOICE OF OUTPUT SHAFTS

Standard heavy-duty drive for side loads
Narrow chain housing for side loads
Wide chain housing for side loads
Output shaft for in-line loads only

Fast Facts About CAT* Torque Converter Power Units

1. Torque output is automatically matched to the load.
2. Loads start smoothly.
3. Load movement can be controlled without using the clutch.
4. Overloads cannot kill the engine.
5. Need no special hydraulic oil—their fluid is engine fuel—fluid level automatically maintained.
6. Cat Diesel Engine burns non-premium fuels cleanly and efficiently, even when idling.
7. Caterpillar can supply your torque converter requirements from stock.
8. Caterpillar Dealers have facilities and parts for servicing torque converters.



Now, to provide you with a greater selection of power packages, Caterpillar offers a new line of torque converter units. As many as twelve different torque converter arrangements are available for *each* of six Cat Engines, up to 480 HP. Whatever your power needs in excavators, cranes and other construction equipment, you'll find the right unit in Caterpillar's line.

In offering torque converter power, Caterpillar has combined extensive research with years of practical application in the field. Here are owners' reports of units on actual jobs: "Live and snappy with plenty of power" . . . "We get an abundance of power out of these torque converter power units."

Either as original or replacement power, it will pay you to check the advantages of torque-converter-equipped Cat Diesels. Each is matched to do *more* work at *lower* cost with *less* down time than any competitive unit. Leading manufacturers of construction machinery can supply these money-makers in the equipment they build.

For complete details about these production boosters, see your Caterpillar Dealer. He has the experience and technical knowledge to help you with your power problems. He has trained personnel who know how to install engines and torque converter power units in construction machines. Call him today!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks — ®

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, U.S.A.

Please send me further information on Cat Diesel Torque Converter Power Units

Name _____

Company _____

Street _____

City _____ *Zone* _____ *State* _____

THE NEW STANDARD OF TORQUE CONVERTER POWER

NOT in the Contract

The town's oldest resident was interviewed on the occasion of his 102nd birthday.

"To what do you attribute your great age?" he was asked.

"It's very simple," replied the old fellow, "I've been taking vitamin pills ever since I was 99."

Then there was the operator's girl who was so rotund that when she weighed herself on one of those fortune-telling scales, instead of receiving her weight and fortune, the card read, "One at a time, please."

"What's the charge?" asked the judge as an operator and his wife were presented to the court.

"This man is charged with beating his wife with an oak leaf," said the sheriff.

"That sounds harmless. Why was he arrested for that?"

"He got the oak leaf out of the dining room table."

Prosecuting attorney to cat skinner held on suspicion: "You mean to say you had sixteen beers and didn't move once from the table the night of the murder?"

"I had a date with Siamese twins last night."

"Have a good time?"

"Well, yes and no."

The day "Big Jim"—a two-fisted oil driller—took a trip to see his prize well, a wire was waiting for him at the site—he was to return at once to the hospital where his wife was a patient.

Back home, Jim located the doctor and demanded: "What's the matter with the little woman, Doc?"

"Everything's going to be all right," the specialist assured him. "We just wanted your consent to perform an exploratory operation."

Jim's answer was immediate and final: "No, you don't! Ain't nobody going to wildcat on my wife!"

Nurse: "I think that shovel operator in room 305 is regaining consciousness, doctor. He just tried to blow the foam off his medicine."

They were considering marriage. Being afraid of the high cost of living, they each got out their pencils and figured up to see if they could afford the plunge. After he had reached a figure which was supposed to be an estimate of the cost of married life, he decided that they had better wait. Then, after carefully studying the girl's figure, he threw away his pencil and went off hunting the preacher.

"I had to change my seat several times at the movies."

"Gracious, did a man get fresh?"

"Well, finally."

The contractor returned to his office one Monday morning showing signs of a very strenuous week-end. One of his friends, noticing his misery, strolled over and asked, "How did you spend the week-end?"

"Fishing through the ice," moaned the unhappy one.

"Fishing through the ice!" repeated his friend in astonishment. "What were you fishing for?"

"Cherries," was the sad reply.

"Look here, Smith," said the contractor to his shovel runner, "you and Jones both started your shovels at the same time, an' he's now got a bigger pile of dirt than you have."

"Well, he's diggin' a bigger hole," said Smith.

In these days of low-cut gowns, tight-fitting waists and sheer stockings, it takes will power for a man to look a woman in the eye.

"Is that girl's dress torn or am I seeing things?"

"Both, chum, both."

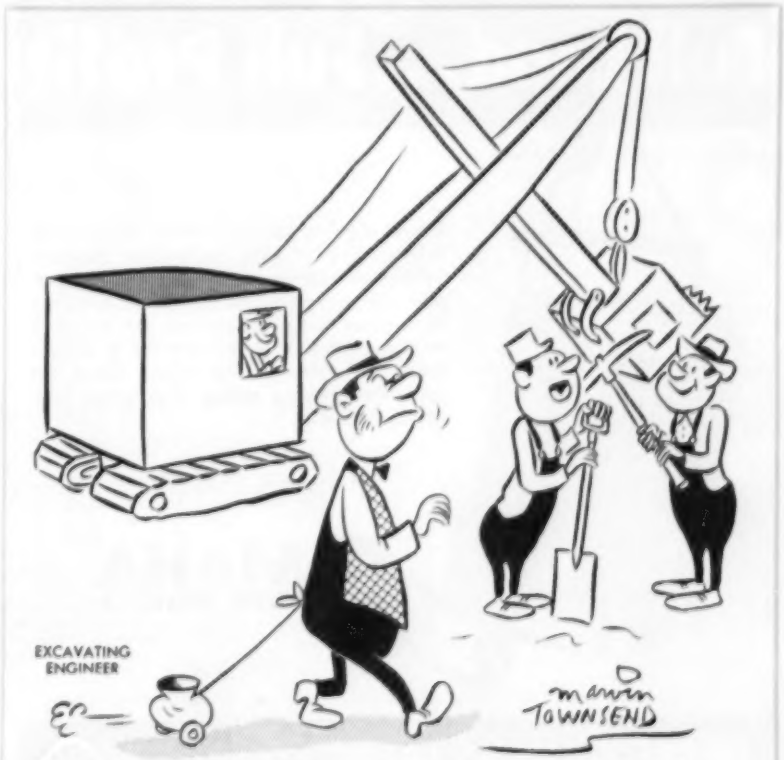
A young teacher was hired as a substitute for a friend who was taking a week off for a honeymoon. Later at a party, someone started to introduce her to the groom.

"Oh," he answered brightly, "I know Miss Jones. She substituted for my wife on our honeymoon."

A woman was filling out an accident report after she dented the fender of a parked car while trying to park her own.

A question on the report was, "What could the operator of the other vehicle have done to avoid the accident?"

Her reply was: "He could have parked somewhere else."



"It looks like our complaint to the union about getting splashed did some good."

Notes . . .

Continued from page 59

will direct all truck sales activities for the company when it resumes production early in February. Norton began his association with Federal in 1946 when it was under other ownership. At that time he was employed in the sales department. Just a year later he was promoted to Assistant Distribution Manager, and in 1948, after only two years with the company, became Distribution Manager. In his position he has handled all dealer contact on sales and supervised all shipping, pricing and invoicing for the past seven years. Norton, a veteran of three years in the U.S. Air Force, was born in Flint, Michigan. He previously worked in the sales department of the Timken Axle Co. and was employed by the C & W Tool and Engineering Co. of Detroit prior to his association with the Federal Motor Truck Co.

Gardner-Denver Co., Quincy, Ill., reveals that managements of the Gardner-Denver Co. and of the Keller Tool Co., Grand Haven, Mich., have announced that the stockholders of both companies have approved a consolidation. Keller Tool Co. now becomes the Keller Tool Division of Gardner-Denver Co. and will continue operations under the former Keller management. E. V. Erickson, president of Keller Tool Co. has been elected an executive vice-president of Gardner-Denver Co.; Gifford V. Leece remains as president of the Gardner-Denver Co. Erickson has been a director of Keller Tool since 1940, was vice-president and general manager from 1941 to 1951, and has been the president of Keller Tool since December, 1951. He is a director of the Grand Haven State Bank and of Eagle-Ottawa Leather Co. The Keller Tool Division operates out of two manufacturing plants, one in Grand Haven and one in Reed City, Mich. The principal Keller products include compressed air operated drills, screwdrivers, nut setters, ratchet wrenches, "Airfeed-drills," hoists, grinders, "Wire-Wrap" tools, and chipping and riveting hammers.

Mack Truck, Inc., New York City, announces the election of P. O. Peterson as president and chief executive. E. D. Bransome, until now president and chairman of the board, will continue as chairman after Mr. Peterson assumes his active duties with the Mack company the 1st of February. Peterson comes to Mack from his position as executive vice-president of Studebaker-Packard Corp. of South Bend, Ind. The new president of Mack Trucks, Inc., has spent his entire career in the automotive industry, starting in the Studebaker purchasing department in 1919. He has held numerous positions in all phases of that company's business in the intervening years.

Koehring Co., Milwaukee, Wis., has announced the appointment of John E. Mahoney, Jr., as district representative for the company's south Atlantic territory. Mahoney has been active in various phases of the construction equipment business since he was graduated from the University of Wisconsin in 1950. He served as shovel and crane operator for several construction crews, sold equipment and served as field service representative for another manufacturer before joining the Koehring Company Service Department early in 1953. As a Koehring serviceman, he devoted most of his time to the Koehring line of crawler and rubber mounted excavators and cranes. He spent three years in the U. S. Air Force as a navigator and was discharged in 1946. In his new position, Mahoney will maintain contact with distributors of Koehring Company equipment as well as those handling the products of three subsidiary companies: C. S. Johnson Co. of Champaign, Ill., Kwik-Mix Co. of Port Washington, Wis., and Parsons Co. of Newton, Ia. The territory to be covered includes Alabama, Florida, Georgia, North and South Carolina, Virginia and West Virginia. The Koehring firm further announces the appointment of another district representative: D. C. Kilpatrick. The territory to be covered by Kilpatrick includes the States of North and South Dakota, Montana, Nebraska, Iowa, Minnesota, Kansas and Western Missouri in addition to the Canadian provinces of Alberta, Saskatchewan, and Manitoba. Kilpatrick joined the Koehring Co. sales department staff in September of 1953. He spent the wartime years of 1942 to 1946 in the U. S. Navy, primarily in the Pacific area. After spending 18

Continued on page 64

Full Load . . . Full Profit

On all digging jobs full bucket loads mean full profits for you. In Omaha Dragline Buckets surplus weight has been eliminated and a bigger pay-load is built-in. A higher arch gives more clearance for digging and dumping, makes room for a bigger load. Available in four types. Send for complete catalog giving description and specifications.

OMAHA DRAGLINE BUCKETS

DRAKE-WILLIAMS MOUNT • OMAHA, NEBR.

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.50 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES — 3 YDS. & UP

Bucyrus-Erie model 150-B Ward Leonard electric shovel, pushbutton starting, separately driven exciter, Tri-Ten dipper handle, available with six cu. yd. rock dipper or special seven cu. yd. dipper; serial No. 101329; shipped August, 1953; excellent condition; location: South Dakota. Box 3598

3-W electric walking dragline serial #443, 80' boom, 3 cu. yd. bucket, single motor 150 H.P., 3 phase, 60 cycle, 4000 volts; some spare parts included; reasonable price.

1½-T electric walking dragline serial #414, 60' boom, 2½ cu. yd. bucket, single motor 100 H.P., 3 phase, 60 cycle, 4000 volts. These machines located in Florida and offered at reasonable prices. Box 3590

Bucyrus-Erie model 120-B electric shovel, excellent mechanical condition, new in 1949, located in Minnesota, priced to sell. Box 3566

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Byers 83-CC ¾ yd. truck crane w/100' boom. $15,000

Bucyrus-Erie 22-B ¾ yd. crane w/60' boom. $7,500

Two 210 c.f.m. Gyro-flow compressors (1953). $5,000

LF 192 International Harvester tractor w/Martin Lowboy trailer (new 1951). $10,000

Shovel, back hoe, clamshell and drag buckets available. Box 3661

For sale or will rent at A.G.C. rental rates Bucyrus-Erie 54-B dragline, long and wide caterpillars, maximum 80' boom, Buda 1879 diesel engine, serial #50753; machine in excellent condition. Carveth Construction Co., Lincoln, Nebraska.

Lima 1201 combination shovel and dragline. Cummins diesel engine, 80' dragline boom. Location middle west; priced to sell. Box 3548

Lima model 34 size ¾ cu. yd. Paymaster clamshell machine, serial #896, 35' crane boom, Buda gasoline engine, electric starter, no bucket, reconditioned, excellent buy.

Loader: New Trojan model LC-100-B demonstrated several times; gas engine, torque convertor, 1 yd. bucket; excellent bargain.

Crane and Backhoe: Used Osgood Invader ½ yd. powered by gasoline engine; 40' crane boom; Rudomatic tagline and dragline fairleads. Stuart M. Christhilf & Co., Inc., 134 W. Mt. Royal Ave., Baltimore 1, Md.

Model 54-B dragline serial No. 102641, shipped new in March 1953; equipped with 90' boom, pendant suspension, high A-Frame, light plant, oversize mounting, extra counterweight, powered with NHRS Cummins diesel engine and torque converter; machine in excellent condition and used very little; location Kansas City; will demonstrate. Box 3662

MISCELLANEOUS EQUIPMENT

Complete dragline equipment including 90 ft. boom less bucket purchased for Bucyrus-Erie 100-B, serial No. 23067, unused, price: $5,000. Morrison-Knudsen Company, Boise, Idaho.

One set of 120-B dragline equipment complete with 90' boom, mast and 4½ yd. dragline bucket. Box 3597

Two Caterpillar D-8 tractors, 2U series, with #25 cable controls, 8A angle dozers; two LP scrapers 10-12 cu. yd. R. C. Micotto Const. Co., 6918 Lansdowne, St. Louis 9, Mo., Phone: Sterling 1-6970.

Used back-hoe attachment for Bucyrus-Erie 15-B ½ yd. machine; working condition; available immediately, $750. J. P. Waite, Inc. 3304 West Pierce St., Milw. 15, Wis.

38-B shovel front like new with original teeth, $6,000.

38-B dragline equipment 65' boom new condition, $2,500. R. S. Armstrong & Bro. Co., 676 Marietta St., N.W., Atlanta 3, Georgia.

Six cubic yard dipper and Tri-Ten handle for Bucyrus-Erie 150-B Shovel; slightly used but in excellent condition. Box 3588

BUCKETS FOR SALE

5 yd. Esco dragline	$2,000
5 yd. Esco shovel	$2,500
5 yd. Hendrix perf. drag	$2,000
2½ yd. Owens clamshell	$1,500
2½ yd. Esco dragline	$ 750
2 yd. Blaw-Knox clamshell	$1,000
1¼ yd. Esco dragline	$ 300

Guy F. Atkinson Company
10 W. Orange Ave., So. San Francisco, Calif.
Phone: Plaza 6-0360, Ext. 125

SEND FOR NEW 1955 EQUIPMENT BULLETIN

Model 250 Parsons trencher, maximum cutting depth 15 ft., used only two weeks; attractive discount. Associated Engineers, Inc., 11 N. Main St., Fond du Lac, Wis.

New 18" dredging pump, rectangular cross section casing, high alloy steel liners, high alloy cast steel 4 vane runner; spare liners. Box 3587

48"x60" Traylor Bulldog jaw crusher (spare parts also); two 20" Allis-Chalmers Superior McCully Gyratory crushers (spare parts also); three Traylor No. 412 type TZ Gyratory crushers; two Traylor 8" Gyratory crushers; two Traylor 48" revolving screens (spare parts also); new RCA metal detector 10"x36" aperture; new Ingersoll-Rand D6U air hoist; Bucyrus-Erie 120-B electric shovel, now in operation (spare parts also); new Allis-Chalmers 5'x12' single deck low head vibrating screen, complete with sheaves for V belts; six used single deck Robins Gyrex screens with bases; five used single deck Robins Vibrex screens; used Cameron pump, size 10", 2400 GPM, 125' head, 1150 RPM, left hand, serial No. 57537; used Cameron pump, size 10", 2400 GPM, 125' head, 1150 RPM, right hand, serial No. 57535; new Edison voice writer (dictaphone). New York Trap Rock Corp., 230 Park Ave., New York 17, New York.

EQUIPMENT WANTED

Wanted: Power boom lowering attachment to fit Koehring crane model 304 and 604. Willy Boutin, 3281 Mont-Joli Street, Montreal North P.Q., Canada.

Wanted: Back-hoe attachment for Bucyrus-Erie 10-B. J. P. Waite, Inc., 3304 West Pierce St., Milw. 15, Wis.

POSITION WANTED

Superintendent available. 30 years experience and qualifications covering hi-ways, airports, large sewers, water lines, heavy and light excavating; all types; know cost and modern equipment; sober, honest, and reliable. Box 3593

SERVICES OFFERED

CABLE TOOL DRILLING CONSULTING SERVICES

Bit dressing and hardening a specialty. The only private consulting service in the churn drilling field.

For information write:
R. C. (Bob) Woodward
(Formerly Chief Metallurgist Bucyrus-Erie Company)
3489 North Murray Avenue
Milwaukee 11, Wisconsin

If you are Buying or Selling Used Equipment this is the place to let the Excavating Industry know about it.

Notes . . .

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months as a serviceman for a major manufacturer of Diesel engines, he enrolled at Iowa State College. He graduated in December of 1950 and immediately became associated with a construction equipment distributor in Cedar Rapids, Iowa. He also did sales work for a crushing equipment manufacturer in Iowa for a short time before becoming associated with Koehring.

Wayne Shovel and Crane Division of American Steel Dredge Co. Inc., Fort Wayne, Ind., announces appointment of four new distributors for the Wayne line of ½ and ¼-yd. crane-excavators. The new Wayne distributors and their operating territories are as follows: Dravo-Doyle Co., Pittsburgh, Pa. (western Pa., panhandle of W. Va.), Cary Hall Machinery Co., Inc., Salem, Virginia (State of Virginia); Industrial and Farm Equipment Corp., Baltimore, Md. (State of Maryland; Kent and Sussex Counties, Delaware; Washington, D. C.); George P. Williams Co., Cleveland, Ohio (northeastern Ohio).

Copco Pacific Ltd., San Carlos, Calif., announces that it is building new plant facilities which will accommodate a major expansion in its line of Swedish manufactured pneumatic mining, construction, and industrial equipment. The two unit project will double the company's warehouse space and also provide additional offices. The $30,000 program is expected to be completed by the 1st of April. Copco Pacific distributes equipment in the 11 western states and maintains branch offices and warehouses in Spokane, Washington; Phoenix, Arizona; Denver, Colorado and Salt Lake City, Utah.

Pioneer Engineering Works, Inc., Minneapolis, Minn. has revealed that K. E. Brunsdale, first vice-president of the firm has retired after more than a quarter century of service to the company he helped found in 1928. Associated with Russell Grader Manufacturing Co. before that firm was sold to Caterpillar Tractor Co. in 1927, Brunsdale had been first vice-president since 1951. Previously he held positions as vice-president in charge of sales, secretary-treasurer, sales manager, advertising manager and credit manager. Brunsdale, the fourth of the five founders to leave the company, was an active participant in the affairs of the Associated Equipment Distributors and is a member of the governing board of Fairview Hospital in Minneapolis. Pioneer, a subsidiary of Poor & Co., Chicago, manufactures conveying, feeding, crushing, screening and washing equipment for mine, pit and quarry, and bituminous equipment for the road-building industry.

Marmon-Herrington Co., Inc., Indianapolis, Ind., announces that Edward F. Ray has been appointed general sales manager of its All-Wheel-Drive Truck Division. Ray will supervise a sales organization of Marmon-Herrington factory representatives and distributors in the United States and other countries. In addition to domestic and overseas sales, he will be in charge of contacts with civilian agencies of the federal and state governments and liason with the Truck Division of the Ford Motor Co. The Marmon-Herrington Service and Parts Departments will also be supervised by the new general sales manager. Ray has a background of over thirty-three years in the automotive industry, including twenty years with the Ford Motor Co. Joining Marmon-Herrington in 1942 for procurement of service parts on war contracts, he was appointed assistant sales manager of the All-Wheel-Drive Truck Division in 1948.

Cummins Engine Co., Inc., of Columbus, Ind., announces the appointment of J. P. Jung as regional manager—southeastern region with headquarters at 805 Peachtree St., N.E., Atlanta, Ga. Jung has been associated with the company since February, 1947. He served 4½ years as assistant regional manager—Great Lakes region at Cleveland, and for more than a year in the same capacity in the southwest regional office at Los Angeles. Jung replaces R. P. Parshall who has moved to Milwaukee to take over the Cummins distributorship as president of Cummins Diesel of Wisconsin, Inc.

"You see he understands construction already but I'm not going to teach him estimating until next year!"

Mack Model LRSW working under a 4-yard shovel on the tough Ardsley-Tarrytown section of New York Thruway.

big shovels call for big trucks

Today's big-yardage jobs demand maximum loads per haul and faster time cycles from shovel to dumping point and return. Increasing use of big 4- and 5-yard shovels points to the Mack Model LRSW six-wheel dump truck as the answer to these stepped-up requirements.

Here's a truck that's built to keep big shovels on the go . . . to give contractors increased production per driver and per truck dollar invested.

Rated at 30 tons payload capacity, it will move 25 heaped yards with unfaltering ease over the toughest terrain. No miring in with Model LRSW—it has the advantage of Mack's Balanced Bogie with exclusive Power Divider, enabling it to pull through where other trucks bog down. In actual service Model LRSW has demonstrated its ability to maintain the time schedule of smaller-capacity dumpers.

Why not investigate the big-unit economy of Mack Model LRSW. It will pay you to see these big jobs at work.

MACK TRUCKS Empire State Building, New York 1, N. Y.

2925

HOW TO DO 4 JOBS WITH 1 MACHINE

Here's a borrow pit a half-mile from the water works in Kansas City, Missouri. 80,000 yards of fill are being hauled from it, to be placed around the water works' settling tanks. A housing project will go onto the leveled area.

Doing four jobs at once in this pit is a CAT* Diesel No. 112 Motor Grader.

It scarifies constantly – since the dirt in the pit is hard clay. It push-loads a No. 15 Scraper. It keeps the borrow pit clean. And it grades the area as the job moves along.

Working with the No. 112 for Miller Brothers Construction Co., Kansas City, are two DW10 Tractors with No. 15 Scrapers, and a D7 Tractor with bulldozer.

"In the eight years we've been operating," W. F. Miller says, "we've found our Cats to be our most durable and rugged machines."

One reason – in the case of the No. 112 – is this: built and serviced *entirely* by one organization, the Cat Motor Grader is carefully balanced, *power* with *weight* with *speed*. Its engine, controls, and frame and circle assembly are all designed specifically to work with one another. This integral engineering–with matched components–helps give you that durability and ruggedness Mr. Miller is talking about.

There are other reasons, of course, and your Caterpillar Dealer will be glad to discuss them with you. Better still, ask him to demonstrate. That's really the best way to size up this big yellow machine.

And remember, your Caterpillar Dealer is always ready with prompt, genuine parts service, too.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks – ®

99% OF ALL CAT MOTOR GRADERS EVER BUILT ARE STILL IN USE